Antiquity

A Quarterly Review of Archaeology

VOL. IV NO. 13 MARCH 1930

Editorial Notes

A FEW years ago a certain bishop suggested half seriously that Science might well call a halt for ten years to put its house in order. His advice was probably not intended to be taken literally, for it was obviously impracticable ; but the idea at the back of it was sound. It was, surely, that the time was ripe for synthesis, for the examination and use of the raw material collected and lying about in disorder. Creative scientific work always proceeds thus. When we have collected our notes and observations we cast them together into literary form and make a book, or plot them and make a map. Henceforth we use the book (or map) and put the notes aside, to be used if required for verification ; but for all practical purposes the book (or map) supersedes the notes. It is one and they are many ; it gives in a handy form all that is then known of a certain sphere of knowledge. The final result is more than the sum of its parts ; it is a new document. To produce it the author or authors have carried out once and for all as a single task what would otherwise have had to be done over and over again by every individual who concerned himself with the subject. It may need expansion when new facts come to light, but it will always have value as a concise and synthetic record. In archaeology such records are, for example, Sir John Evans's books on Ancient Stone and Bronze Implements, Déchelette's Manual, Ebert's Reallexikon, the Reports of the Royal Commissions on Ancient Monuments, and bibliographies. They are not, and are not intended to be, literature ; but the publication of each of them represents a stage in the advance of knowledge ; they are landmarks or milestones.

We have a definite object in repeating these platitudes (as they will appear to some) because ANTIQUITY itself aims at achieving a synthesis, and the present number is, we think, a peculiarly synthetic one. The subjects dealt with are looked at as a composite whole—and they are described in language which any educated person can understand. We state this because we have not always been able to achieve the ideal, nor probably shall we ever quite succeed in doing so, however hard we may try. With the beginning of our fourth year of existence we have made several good resolutions, which we shall be able to keep if our contributors play up to them as well as they do in this number. This represents no change of policy, but merely an effort to carry out more thoroughly the one we adopted at the beginning.

These remarks have also a wider bearing. Our policy is not isolated or merely individual; it conforms with the best scientific thought of the times. This may be expressed as follows:—The blind heaping up of raw material has proceeded far enough and it is time to call a halt. Archaeological excavation should not be lightly undertaken; much of it is mere treasure-hunting and adds little or nothing to knowledge (*e.g.*, the 'opening' of unmutilated round barrows and some other tombs). Excavation, if undertaken, must be justified. It must have some definite objective—to determine the age and character of a site, to snatch something from one that is doomed, to fill a gap in the chronological scheme. But there is an immense field for research quite apart from excavation, in field-work and air-photography. The imaginative use of large-scale maps, and of air-photographs employed in the field as maps, is as fascinating as excavation; it provides an admirable training in outdoor observation and method; it adds to knowledge, and it can do no possible harm to the ancient monuments themselves. To write a clear and concise description of a site is not at all easy. It is however essential that archaeologists should be able to express their meaning plainly, as we know all too well.

Our readers will remember that not long ago we published some criticisms of an ambitious scheme of excavation undertaken in East Anglia. The writer criticized not the method (which is all that it should be), but the launching of the scheme at all in the first instance. He claimed (and we entirely agree with him) that the new knowledge likely to be gained by the complete excavation of the site would not

be worth the cost ; and that better results could be obtained from other sites for far less money. To the general public such an attitude was almost incomprehensible. To many the word ' archaeologist ' is equivalent to ' excavator ', and it seemed quite wrong that an archaeologist should come forward and denounce an admittedly well-conducted excavation as needless. The general underlying principles, however, were strikingly reinforced by an official statement issued by the Society of Antiquaries of London and published in the *Antiquaries Journal* (1929, IX, 349). We welcome most heartily the lead thus given by our leading archaeological society.

It cannot be too often repeated that the one and only justification for excavation is the desire for knowledge, and of reconstructing the past. The excavator of a tomb and the detective employed in a criminal case are confronted by closely allied problems; they solve them by methods which have much in common. (Perhaps that is why so many archaeologists have a passion for detective stories). We have all been taught the importance of leaving the body untouched until the police come ; we are beginning to realize that ancient remains should be treated with similar respect, and left for an expert to examine. In a recent case of murder or suicide much depended upon a detail which amateur disturbance would certainly have obliterated. Dr Reisner and his fellow-workers at the Pyramids Camp left nothing to chance in their clearance of the tomb of Queen Hetep-heres: 'We had an intact tomb of the time of Cheops—the only intact royal tomb of the Pyramid Age. It was manifestly a reburial, but it contained the first royal furniture of this period ever found. Our duty was clear. No matter what the cost in time and labour, the evidence contained in that tangled mass of furniture, implements and vessels must be recovered to the last possible scrap. With the experience of many years of archaeological research we devised a special method of examining the mass of objects and recording every fact, aiming at a record which would enable us to replace every object in the tomb as it was, if so ridiculous a demand should be made on us '. (Bulletin of the Museum of Fine Arts, Boston, December 1929, XXVII, 83). They were thus enabled successfully to reconstruct the gold-cased furniture, as the illustrations show. But even this technical skill, valuable though it be, does not represent the highest achievement of the archaeological detective. Just as in police work it is the reconstitution of the *crime* that is aimed at, so in archaeology it is the reconstitution of *events*,

that is, of history. Bit by bit a purely abstract structure is created in the mind of the architect, so to speak, which in the fullness of time he sets down in writing, and the world is richer than before. Dr Reisner has shown (what some of us knew before) that he is a master of both arts.

❧ ❧ ❧

Every true archaeologist knows this, of course, however much he may be compelled to perjure himself in the interests of expediency. How different is this pure spirit of enquiry from the motives often imputed or alleged ! How difficult it is to bring home its driving-force, its reality as a compelling motive, to those who have not caught the spirit ! How mean appear the appeals to cupidity, to local patriotism, to tourist interests or to those of commercialized art ! What we really want is a clear complete view of the past, whether it be of the course of evolution—of man himself and of the civilizations he has created—or of the space-grouping of cultures of peoples, represented on a map. The former gives us the curves of progress, the cycles of history, or whatever we may choose to call them ; the latter provides the spatial framework. Both are great generalizations facilitating and enriching thought and suggesting causes. Thus we come back to the point at which we started at the beginning of these notes—to the present need of co-ordinating our facts.

The SUBSCRIPTION to ANTIQUITY for 1930 is now DUE. We would remind our Subscribers of the form and envelope inserted in the December number and that we shall be glad to have an early response. This does not, of course, apply to those who have already been kind enough to send us their cheques or to those who pay by orders on their banks.

Payment should be made to

The Assistant Editor, 24 Parkend Road, Gloucester.

The Ascent of Humanity*

by G. Lowes Dickinson

EVERY age, even those that seem at the first approach to be stationary, turns out to be transitional when we get to know more about it. Primitive societies are transformed by contacts and war. The China once conceived as immemorial and unchanging reveals itself as a long series of revolutions and wars. The apparent immobility of the medieval church becomes a succession of dissolving views ; and perhaps the only generalization that may be true about this continual movement is that it becomes more swift and more hazardous as it proceeds, like the rapids of a great river hurrying to its fall. For there is something about the crisis in which we are at present involved which makes it at once more dangerous and more promising than those which have preceded. On the one hand, ideas are more powerful and more solvent; on the other—and this is a new fact in history —the power put at our disposal by science opens possibilities, both of re-construction and ruin, such as have never before been at our command. The War has made the position clear to all who care about society, and even men of science are beginning at last, though slowly and sporadically, to peep out of their specialisms and consider, with apprehension and alarm, whither we are being carried by these new forces which we have not yet learned to control.

For science has led us to a curious dilemma. It is most exact when it is least practical and most uncertain where knowledge would be most important. In its purest form it is mathematical physics, and it is there that its principal triumphs are achieved. But that is a region which hardly one man in a million can penetrate. The rest of us are left admiring but impotent while theory after theory rises and falls. We attain perhaps a vague realization of the amazing scale and complexity of the Universe, whether it be the infinitely great or the infinitely small to which our dazzled attention is called ; we can see that the appeal of physics to the imagination is extraordinary, and might be a theme for poetry more profound than any that has yet been written, were it not that such truth can only be expressed in abstract symbols. The mathematicians have thus a monopoly of the poetry as well as of the

---

* *The Ascent of Humanity; an essay on the evolution of Civilisation*, by Gerald Heard. *Jonathan Cape*, 1929. 15*s*.

science ; and in any case neither the one nor the other has any helpful bearing on the problem of human conduct. Physics, so conceived, one understands, is trying to swallow up chemistry, and chemistry to swallow up physiology, while on physiology supervenes the new and still chaotic, if promising, pseudo-science of psychology. I call it chaotic because even its method is under dispute. For while, at the one extreme, the fiction is pretended that there is no such thing as consciousness but only movements of the body, at the other the body is omitted, and all the stress is laid, we must not say on consciousness but on that obscure abyss called the ' sub-conscious '. And while the method of psychology is thus under dispute, it has not begun to touch on the main problem of action, namely whither we want to go and how we are to get there. The question of ends, hitherto, has been the province of religion and philosophy, while that of means is left to the art of men of action.

History, it is true, might deal with these questions, but can we say that history is a science ? It was thought, in the middle of the 19th century, that it was, or at any rate could be. But that movement petered out into a bare attempt to relate facts truly without judging them. Of that method the inaugural lecture of Professor Bury at Cambridge gave the most logical and depressing exposition. For after setting forth the immense documentation lying before us in modern history (including not only all the books and pamphlets but all the newspapers of the world) he concluded that, though nobody could possibly master all this material, yet at any rate, for our consolation, every history would be itself part of the material for another, and so *ad infinitum*. We recall the dilemma of Tristram Shandy, when he discovered that he had taken a whole year to write one day of his life, and that at this rate he was not likely ever to finish his task. In literature the Cambridge Modern Histories are as good examples as one could find of this method. They are invaluable for reference, or would be if they ever gave references. But they are but raw material, waiting, not too hopefully, for the fire from heaven to descend to turn them into science. Moreover, in history, the material itself is gappy and accidental, and it may well be doubted whether, under these conditions, anything deserving to be called science could ever be constructed.

More interesting and important in my own judgment is that kind of history which used to be called the ' philosophy of history '. The 18th and early 19th centuries were the golden age of these productions, and Turgot, Condorcet, and Comte, Herder, Hegel and the long line of German speculators the well-known exponents. None of their

productions could justly be called a 'science' of history, as their extraordinary diversity alone would be sufficient to show. But they are all sketches of the kind of thing a science of history might be, if it were practicable. For they provide a synthesis, and a synthesis, by a man of imagination and capacity, may always have some value and truth, though not *the* value and *the* truth. It is only when the human mind has worked over and judged the facts that the facts begin to be illuminating, and history that is alive will always be tendentious. But if the tendency is known both to the writer and to the reader there is no harm in that. It is the tendency that pretends not to be there that may mislead, and perhaps, sometimes, is intended to do so.

These remarks are introductory to a review of a book having the title prefixed to this article. The author is Mr Gerald Heard, and he appears to fulfil the conditions laid down for a good philosophy of history. Without being a specialist in any science he has mastered the facts, in many sciences, which are relevant to his contention, and his survey is one which throws new light on the course of history. Moreover he puts forward his view modestly and tentatively, referring to his work, in the concluding paragraph, as, 'a rudimentary attempt at a philosophy of history, an effort in the barest outline to show how, in the light of modern science, history might be viewed as the Odyssey of the spirit of man'. This is surely the right attitude to adopt in the existing, and perhaps in any possible state of our knowledge. To sum up the author's view in a few brief words is of necessity to misrepresent him; for what gives value to his work is the wealth of his illustrative knowledge. Briefly, the course of the argument is this. (I quote from the introduction). 'The human consciousness is engaged in a secular process, spiral in character. The most primitive societies, of which, in their original form, we have only scanty hints, are undifferentiated herds in which individuals have not yet developed. They are like what we suppose the communities of ants and bees to be. Later, by degrees, in different ways and different places, individuals begin to emerge. They become priests, kings, monks, philosophers, men of science ; and the more they develop the more they slough off the social and corporate sense, until in our age at the period we call the Renaissance, they stand alone, intellectually sublime and morally monsters. But this development is involved in an inherent contradiction. The more the individual seeks and acquires the less he is satisfied, and Hamlet succeeds Caesar Borgia. Then, when the movement has run into this impasse, if it has not destroyed civilization, there begins to emerge a new form of consciousness. It

is above the individual, as the earlier form was below him. Henceforth it begins to be the business of man not to acquire but to understand, and to understand by a co-operative effort. The age of science has dawned and at its dawn we stand. The problem before us is whether the higher consciousness thus emerging will be able to control the lower, that is bursting out all about us, with the cry of individuals newly released for the fruits that have turned so sour in the mouths of their predecessors'.

This is the general plan of the book, but some further explanation must be added. The process of evolving individuals has happened not once but many times. Mr Heard traces it in Egypt, in Greece, in the Renaissance, and in Modern Europe, and every time the end has been the collapse of the civilization. The first individuals to emerge and break down the homogeneous whole are the magician and then the war chief. They emerge in response to need, because they only seem to be able to produce what the Community wants, leadership in defence or aggression, and magic to secure the fertility of the soil ; for magic is the atmosphere in which primitive societies live and breathe. From this germ springs at last what history knows as States and Empires. But individuality has its nemesis. Arising to lead the society, it goes on to exploit it, and then, weary and disillusioned, finding less satisfaction precisely as it obtains more of what it is seeking, it collapses in the void it has created. This is the natural and predestined end of the race of kings and tyrants, conquerors and organizers. But these and the society they have created meantime have evoked a crowd of lesser individuals, who, in their passion to develop themselves, threaten society with anarchy. Thus in Mr Heard's view, 'the great danger now is that society, having guarded itself against all outward dangers, having the power to put far from it all threat of violence, will itself fail at the centre from a lack of nerve, a stroke of paralysis. Mankind, having at last raised itself above the floods of circumstance, will break down through a Babel of irreducible individuals. The psychological condition has already nearly reached saturation point. The numbers of self-conscious individuals are nearly sufficient. The centre of gravity in the community has hardly ever before been so high. The intensity as well as the extent of self-consciousness has its only precedents in the two last city-state phases, and yet to-day men live in individual-swamping empires and work in vaster economic systems, and the empires and systems compete as intensely as once did city states'. How can this danger be met ? Mr Heard's suggestion is that a new stage of consciousness is emerging which may

alter the whole course which the world has been pursuing for centuries and pre-eminently during the last hundred years. The triumph of mind over matter during the 19th century, marked in particular by our great engineering feats, was, in his view, the climax of a cycle of ten thousand years. But it is drawing to its end. 'It seems probable', he says, ' that no tower will ever outdo the Eiffel Tower, and that a Channel Tunnel may never be bored. Not that we could not do it, but that we shall no longer want to. We shall want instead to watch and try to understand the drift of the Universe, and as we come to see more we shall be less desirous to change things. The life of contemplation, not solitary but co-operative and social, begins to succeed the life of action and domination '.

This view of the possible future of our feverishly active age is, so far as I know, new, and is certainly surprising. Only the event can show some later generation whether it is true. But more disconcerting, very likely, than this suggestion of a delivery from precisely that activity upon which our age most prides itself, will be to most readers, and especially to those trained in science, Mr Heard's concluding chapter. For there he deals with a series of facts which are commonly treated as though they were mere invention of superstition or fraud—those facts of telepathy, clairvoyance and the like which have been so painfully collected and sifted by the Society for Psychical Research and which seem to suggest a form of consciousness more comprehensive than that by which most of us are bounded. The ignorance, indifference, or scepticism of most men of science to this whole region of experience is intelligible enough, so involved is the whole subject in confusion, credulity, and fraud. But that there is something there which is true and significant no one who has the patience to sift the evidence is likely to dispute; and no one can say what more may be discoverable, until our preliminary gropings have become an assured branch of science. Meantime, it should be noted, Mr Heard does not interpret this evidence, so far as it goes, in the common ' spiritualistic ' sense. That interpretation he thinks is one that runs along the line of least resistance, flattering our wishes and reflecting our all too human outlook. In his view the medium, and most of those who concern themselves with such matters, are still at the stage of the earliest primitive individualism. ' As such they are driven by an overmastering desire for survival which can only express itself in individual terms. Such is the force of this desire that not only does it misinterpret its experience in anthropomorphic terms, but it condenses it into anthropomorphic images and

phantasms. Experients at this stage of consciousness cannot conceive the evidence they produce as being something beyond mechanism, *i.e.*, symptoms of a superconsciousness, and so they must make out of it something below mechanism, *i.e.*, anthropomorphism '. The spiritualistic cult is part of the same movement as the cult of witches and ' the witch is the proto-individual, the priest-king in the Modern World. Born out of time, a poor laggard of civilization, she repeats the tragedy of his history without his purple glory : even as a squalid May Day mendicancy is the last whimper of that great appeal through vicarious sacrifice which once brought man back to nature in reconciliation, and which still, thin and high, like the last echo of an Alpine horn lost on the snows, speaks to many who listen with strained hearing of an atonement between the poor sinner and high heaven'. In this interpretation of the facts a primitive attitude of the observer interposes an erroneous hypothesis. The same thing occurs in the case of hauntings and other such phenomena. They are, Mr Heard suggests, influences deposited from ' the dream, the violent wish of the dead doer reinforced by being experienced by a series of individuals, who come into his path, generally, when most easily "tapped", that is asleep or frightened'.

The point made, in the course of this argument, that men are limited in their knowledge not only by their ignorance of facts but by their preconceptions, is fundamental in Mr Heard's doctrine. The phase of mental development determines the interpretation which men put upon facts. A good example is the misinterpretation of primitive people by 19th century inquirers. Being themselves rational they supposed rationality in the savage, not only reading reason into his behaviour but forcing upon him explanations in some sort rational. The savage is not prepared for cross-examination. 'He does not understand either why the question should be asked or why it should have an answer. The less he has ever envisaged an end, the more he feels fixed by this new dilemma and that he must be helped out. Under suggestion he invents one where there has never been one before, for, with his different time-sense, his short-range spontaneous motive has never needed such a goal-concept. He must please the inquirer. His mind, isolated and alienated by this new intrusion of teleology, becomes like the talking animals, parasitic on the mind that can and does constantly envisage action as a purposed deed toward a definite, personal, self-conscious satisfaction. As far as he may, he gives the answer that he divines is expected of him, and anthropological inquiry may have done something to civilize the savage but nothing toward understanding him—rather it

has done its best to destroy the thing which it intended to understand'. It is only recently that investigators have begun to realize that the primitive mind is not only filled with different objects from our own but is also different in its nature and working. And, as Mr Heard thinks, they are enabled to realize this only because and in proportion as they are themselves becoming like the people they are investigating—conscious, although at a higher level. For in his view, as we have seen, development is neither rectilinear nor circular but spiral, and the most modern man looking down from above upon a phase vertically below his own understands it better than those could who see it only from an angle. The evolution of knowledge is thus not merely an accumulation of facts nor even an interpretation of them. It depends on the moving of the consciousness of the enquirer to a position where he is capable of seeing straight. In particular examples we are all aware of this, for nothing is more characteristic of the half educated than the haste with which they apply to complicated facts theories which merely reflect their own incompetency and their own wishes. The innumerable systems of religion which litter the course of history are sufficient evidence of this, and so is the never failing host of crank political systems. But, in Mr Heard's view, the very development of consciousness necessitates such misapprehension.

Enough perhaps has been said to draw the attention of those who endeavour to understand history to a book which, whatever be the final verdict on its general thesis, is seminal and alive, not merely another spadeful of earth piled upon the great dust-heap of history. In particular, the book should be attractive to the younger generation, who, having been shaken out of the too easy optimism of progress, are in danger of falling back upon a hopeless and therefore, in the end, cynical and unproductive scepticism. Mr Heard makes no religious or metaphysical assumptions. He bases himself on what is known by actual observation, and endeavours thus to build up a view of the whole process which, if it does not impose itself inevitably, is at least a possible interpretation. We are not likely in any near future to arrive at final certitude. But we need not and shall not, if we have hope and faith, abandon ourselves therefore to despair. We are involved in this great quest which alone gives dignity and worth to our life, and the sentence of Emerson is perpetually true for those who can receive it :—

Heartily know,
When half-gods go,
The gods arrive.

The Gospels and their Oldest Manuscripts

by F. C. Burkitt

TO write about the Gospels, explaining their origin and transmission, within the compass of an article in Antiquity is only possible by expounding the writer's own views on this much discussed and in many parts highly controversial subject in a somewhat peremptory and dogmatic fashion. I therefore make my apologies beforehand to such of my readers as may hold other views, which the inevitable limits of space make it for me impossible to discuss. The main problems I have to consider are: (1) how did the Gospels come to be written, (2) in what ways were they preserved, and (3) what are the chief texts actually extant?

I

The public career of Jesus Christ was a short period of about eighteen months ending with April, A.D. 30, or a year or so before or after. Pontius Pilate was superseded in the spring of A.D. 36, so that the crucifixion of Jesus must have taken place before that year at latest. The earliest surviving Christian traditions about the writing of the Gospels tell us that Matthew wrote in Hebrew while Peter and Paul were alive, that Mark wrote after the death of Peter, that Luke was connected with Paul, and that John wrote last of all at Ephesus. Irenaeus of Lyons (A.D. 180), who tells us this, was concerned to demonstrate the closeness of the links which bound the Catholic Church to the Apostles of Jesus, so that we may be reasonably certain that he has not post-dated the Gospels: it was in Nero's time, about A.D. 64, that Peter and Paul were martyred, so that the date of Mark's Gospel must fall after that.

Thus, neglecting for the moment the tradition about an early Hebrew Gospel drawn up by Matthew the Apostle, we find that an interval of about thirty years, *i.e.*, a whole generation, elapsed between the writing of the earliest Gospel and the events narrated. How is this? The chief reason undoubtedly lies in the peculiar nature of the expectations of the earliest Christians. In the words of Luke (XIX, 11)

' they thought that the Kingdom of God should immediately appear '. They were looking for a complete end of the present state of things, a Return of the Lord Jesus from heaven. It is probable that St. Paul was one of the first Christians calmly to contemplate the prospect of himself dying before the return of Christ (Phil. 1, 20–24) ; he had come to see that the Interim was going to be longer and therefore more important than he himself and the other early believers had supposed, but in this he was a pioneer. Obviously belief in a near-approaching End was unfavourable to historical writing : the first Christians, both early believers and new converts, were looking forward not backward. There is no sign whatever that in early times the instruction of new converts was concerned with tales of what Jesus had done and said in Galilee or Jerusalem, and indeed such things, as we all know, are hardly alluded to in Paul's own correspondence. I do not say that Peter did not from time to time talk of things he remembered Jesus doing and saying when he, Peter, was going about with his Lord, but there is no sign that such talk was systematized in Peter's lifetime.

The tradition about the Gospel of Mark very well fits the internal character of the work and the conditions of the time. When in Rome in A.D. 64 Peter and Paul were martyred, and when at about the same time the older believers who had personal reminiscences of Jesus were dying off, Mark, who we are told had become Peter's interpreter—no doubt Peter was only fluent in his native Aramaic—had the great idea of turning the Gospel into a Biography, of setting forth in a narrative how Jesus had announced in Galilee the coming of the Kingdom of God and then had gone up to Jerusalem with His followers and His chosen associates. Possibly the work went on to tell something of the early days of the Believers in Jerusalem, but from some cause or other what has survived is imperfect at the end : we have the tale of the Crucifixion, but the narrative of Mark breaks off in the middle of a paragraph about the Resurrection of Jesus (Mark XVI, 8). The twelve verses which follow are a later addition, absent from the earliest MSS and versions.

It is now time to turn to the Gospels of Matthew and Luke and consider what we can gather from internal evidence about their composition. After a century of discussion some measure of agreement on this subject has been reached. When we arrange Matthew, Mark and Luke in parallel columns it is found that Mark is central. Matthew and Mark often agree in the order of the tales against Luke, Luke and Mark often agree in order against Matthew, but Matthew and Luke

never agree in order against Mark, and what is true of the order is almost universally true of the wording. Moreover Mark is invariably more naïve, more diffuse in detail, less ' hierarchical '. The bits of Palestinian Aramaic (*Talitha cumi*, *Ephphatha*, *Abba*) which we find in Mark are left out by Matthew and Luke. In a word, Mark upon examination is seen to be a chief source on which both Matthew and Luke are based. In particular our ' Gospel of Matthew ' has no sign of being a work of original reminiscence, such as an account of Jesus by an Apostle, a personal follower, would have been ; and it is clearly a Greek work, not a translation from the Aramaic of Palestine. In fact, our Matthew may fairly be described as a ' second edition of Mark, revised and enlarged '. Certainly the tradition that our ' Gospel of Matthew ' is the work of Matthew the Apostle is incredible.

The Gospel of Luke is a more independent work. As planned by its author it is the first volume of a more extended History of Christianity, the second volume of which survives as what is called the Acts, which leaves off with the arrival of St. Paul in Rome. Very possibly a third volume was contemplated, which would have recounted the martyrdom of Paul ; but nothing of this survives, and indeed it may never have been written. There are signs both in Luke and Acts that the author had read the *Antiquities* of Josephus, a work published at Rome in A.D. 95 : possibly he had had access to this work before it was published. On the whole, that Luke and Acts were written in Rome about A.D. 90 seems the most probable view. The Gospel of Matthew is clearly quoted in the letters of Ignatius, bishop of Antioch, written in A.D. 115, and it seems likely that it may have been compiled there some time between A.D. 80 and 90.

Matthew and Luke are both based upon Mark, but besides Mark they used independently a lost Greek document which modern scholars call Q. This document contained a large number of the Sayings of Jesus, including a few anecdotes leading up to a Saying, but it does not seem to have been a biographical sketch, such as the Gospel of Mark is. The letter Q stands for *Quelle*, the German for 'source'; formerly it was called ' the Logia ', on the assumption that it was really the ' Hebrew ' Gospel or compilation which Matthew the Apostle is supposed to have written. Very possibly Matthew may have written something or other in Aramaic, but the lost document used in our Gospels of Matthew and Luke was clearly written in Greek. The simplest proof of this is afforded by Matt. XXIV, 51, Luke XII, 46. Here we read of the untrustworthy steward whose master returns suddenly and punishes him.

Both Matthew and Luke say that the master will cut him asunder (διχοτομήσει αὐτόν), and then his portion is to be with the unfaithful (ἀπίστων). No doubt masters could torture their slaves, but this particular punishment would make any further 'portion' for the delinquent superfluous: obviously it is a translator's error for 'separate him', *i.e.* degrade the steward from his post and put him among those slaves who are reckoned untrustworthy. Many other instances might be given of noteworthy agreements of Matthew and Luke in Greek equivalents for words and phrases, which (if genuine) must have been spoken in Aramaic, the most noteworthy being ἐπιούσιον, the word we render 'daily' in the Lord's Prayer.

'Q', therefore, the common source of Matthew and Luke in the parts not taken from Mark, was a Greek collection of Sayings of Jesus. Unfortunately it is quite impossible to reconstruct it with any certainty. We only know some things that it did contain, viz. those which Matthew and Luke thought appropriate to insert in their own works, and we may further guess that some things found in Matthew only, or Luke only, may also have been taken from it. But we have no means of reconstructing Sayings which may have stood in Q which neither Matthew nor Luke thought fit to incorporate, nor do we know clearly what it did *not* contain. 'Q', in fact, remains nothing more than a convenient label, which we can affix to certain verses and paragraphs in the Gospels of Matthew and Luke to indicate that they come from a lost early collection of Sayings of Jesus.

It is most unlikely, especially in the case of Luke, that all the fragments of genuine historical reminiscence of Jesus come exclusively from Mark or from Q. Some things of the highest value may have been preserved by Matthew and by Luke singly through lines of tradition from which they alone have drawn. Thus each of the three Gospels known as Mark, Matthew and Luke, has some independent historical value, but where they are all telling the same tale they are not independent witnesses: their common source is Mark, and the statements of Mark are to be preferred above the later modifications which Matthew and Luke have introduced.

The Gospels of Mark, Matthew, and Luke, are called the Synoptic Gospels, because they are so much alike in contents and arrangement that it is possible to arrange them in parallel columns, in a *Synopsis*. If we attempt to add to the Synopsis the Fourth Gospel, called the Gospel of John, we get into difficulties. We shall find the fourth column generally blank when the first three are full, and when the fourth

column is full the other three will be for the most part blank. Clearly we have here a fresh conception of Jesus, not a variant on the old theme.

This Fourth Gospel is in many respects peculiar. It is peculiar in style, so peculiar that, though distinguished by an excessive simplicity both in vocabulary and syntax, almost every verse even when detached from its context carries with it unmistakable evidence of its origin. This style is so individual that it is in several places impossible to distinguish where words ascribed to Jesus end and remarks of the Evangelist begin, a circumstance which would greatly detract from its usefulness as a historical document, even if the general presentation were superior to that found in Mark and the Gospels which follow Mark. Moreover it is not a question of merely enriching the outline given in Mark by the additional tales in 'John': the two presentations are often incompatible: if 'John' be historical, then Mark is not.

The Church tradition declares that this Fourth Gospel was the latest, that it was written by 'John' in extreme old age, *i.e.* some time after A.D. 95, and at Ephesus. There is also a tradition that there lived at Ephesus, at the end of the 1st century, a Christian known as John the Elder, who (with another personage named Aristion) was called 'a disciple of the Lord'. It is very generally now conjectured that the Fourth Gospel, together with the three short 'Epistles of John' in the New Testament, was the work of this Elder John, and not of John the Apostle the son of Zebedee.

The whole subject of this Fourth Gospel, its authorship and its historical worth, is highly controversial, not only from mere prejudice but also from the peculiar nature of the work itself. It undoubtedly contains single features which look like bits of genuine tradition, but it is difficult to resist the conclusion that, as a whole, the writer does not distinguish clearly between what his eyes saw and hands handled and what he had come to believe must have happened.

It may be considered that the historical reminiscences enshrined in the Gospels, particularly in Mark, are greater in extent and better in quality than might have been anticipated on general grounds. No one had any interest in recording the career of Jesus the Nazarene except the Christians, who were Christians because they believed Jesus to have risen from the dead, to have ascended into the heavens, and to be about to return in glory. The remembered words of Jesus had for them authority, whether they were moral maxims for present use or adumbrations of the glorious future, but they took little interest in the details of His earthly career. These Christians, at the end of the 1st century A.D.,

were Greek-speaking folk, mostly of the less cultivated classes and mostly congregated in the greater cities bordering on the Mediterranean. In these circumstances it is remarkable that a narrative such as the ' Gospel of Mark ' should have been written and still more remarkable that it should have been preserved, for its Hero stands before us as a living human personality and its background is Palestinian, neither Greek nor ecclesiastical. Nothing but a strong element of personal reminiscence could have produced this very surprising result.

II

It is a curious though familiar circumstance that the Christian Church has *four* official accounts of Jesus Christ. It might have been anticipated that only one would have been accepted as authoritative. The fact that there are four suggests that each had already been received with favour, in different circles or localities, for some time, and so had acquired too much prestige either to be dropped or to be incorporated into a larger inclusive compilation. It is quite obvious that each of the Four is written as an independent work, whatever sources may have been used, and was not planned to be a member of a quartette.

That the oldest Gospel, that of Mark, was connected with Rome is asserted by the tradition and seems most probable. There are but few quotations made from it in early times, so that the fact of its survival at Rome side by side with Matthew, which is practically an enlarged second edition of it, suggests that it was too much rooted in Roman ecclesiastical use to be superseded. Matthew has certainly some connexion with a Jerusalemite tradition (see XXVII, 8, XXVIII, 15), yet it is based on Mark even for the story of the last days in Jerusalem. We look therefore to some place of origin which was likely to be in touch both with Rome and with Palestine. The first clear use of it is that made by Ignatius of Antioch, so it is a natural inference that it was compiled at Antioch and that it may have been brought to Rome by Ignatius himself in A.D. 115.

The Gospel of Luke is written in a rather more cultivated Greek than Matthew and much more so than Mark. It opens with a carefully phrased dedication to someone called ' the Rt. Hon. Theophilus ', (Κράτιστε Θεόφιλε), and it has been conjectured (*e.g.* by B. H. Streeter) that this personage may really have been Flavius Clemens, cousin of Domitian and husband of Domitian's niece Domitilla. There is reason to think that Domitilla and her husband were crypto-Christians, and

Luke-Acts does seem to have been a work written to set forth the Origins of Christianity to this more cultivated circle of Roman society.

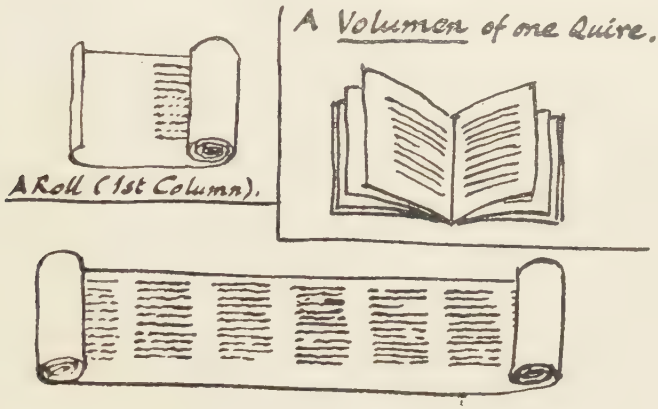
The Gospel of John appears to have reached Rome late : it is in the person of Gaius, an otherwise orthodox Roman presbyter, that the last note of opposition to its reception is heard. It is not quite certain that it was used by Justin Martyr, who wrote in Rome about 160. Justin's disciple, Tatian, certainly used a Harmony of our Gospels called the *Diatessaron*, a work which presupposes not only the existence but also the authority of all the Four ; and to Irenaeus in A.D. 180 the Roman acceptance of Matthew, Mark, Luke and John, and of these only as authoritative, is an incontrovertible and established fact. We may therefore suppose that the existing Church system of accepting the Four Gospels as of equal and exclusive authority is based on the Roman custom of about the middle of the 2nd century A.D.

III

How were the Gospels preserved, and in what forms ? The classical Latin for a ' book ' is *liber*, but when the Gospels were written and for about a hundred years afterwards a book almost always took the form of a roll. During the third century A.D. another style came in, the proper name for which is *volumen*, a 'volume', that is to say a number of sheets folded in two and stitched together at the fold, like a modern bookseller's catalogue or a small pamphlet. A little later these ' volumes ' were stitched together at the back, with or without boards at the sides, *i.e.*, like a modern bound book : the Latin name for this is *codex*. The Christians, who had special reasons for referring to particular passages in their sacred Books, found the ' codex ' a convenient form : by the 4th century it was in general use. The only MS of any of the Four Gospels, so far as I know, which survives in roll-form is the papyrus fragments from Oxyrhynchus numbered 1228, which contains bits of John XV and XVI, and is assigned to the late 3rd century. But *Oxyr.* 208+1781, fragments of a ' volume ' which contained the Gospel of John, are even earlier, and are probably the oldest surviving piece of any part of the Four Gospels.

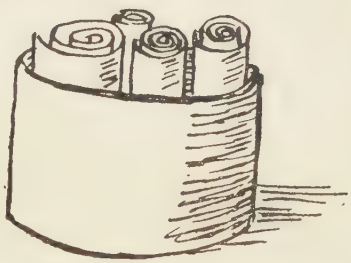
Rolls were written in columns at right-angles to the length of the roll : a reader would fold up the columns he had read with his left hand, unrolling the further matter with his right : when he had finished he would roll up the scroll back again (πτύξας, Luke IV, 20). Several rolls which belonged together, such as the Four Gospels or the various Letters of Paul, were kept together in boxes, shaped something like a

band-box (in Latin, *capsa*). 'What have you got in your box?' said Saturninus the Proconsul to Speratus the Christian. 'Some rolls (*libri*)', replied Speratus, 'and letters of Paul, a just man'. This proves that at Carthage in the year A.D. 180, when this dialogue took place, the Christians still kept their sacred books in the old-fashioned form of the roll.



A Liber or Roll.

A Codex.



A Capsa for Rolls (libri).

The use of vellum instead of papyrus came in about the same time as the change from the roll to the codex or bound book. A vellum book is practically indestructible by wear and tear, and so was suitable for Christian ritual use, in which the public reading of sacred scriptures has always held a prominent place. No doubt vellum was always rather expensive and somewhat heavy, and an unlicensed association, such as the Christian Church was until 313, was under little temptation to

multiply books in this durable style. But two MSS of the whole corpus of the Canonical Writings dating from the generation immediately following 313 still survive. These are the Codex Vaticanus, known as B, and the Codex Sinaiticus (now at Leningrad), known as ℵ.*

Such Pandects, as they are called, must always have been rather rare. They must either be huge tomes, such as B and ℵ are, or the writing must be minute, as in the Latin Bibles which came to be multiplied in the 13th century. As a rule the New Testament was written in three codices, one containing the Gospels, one the Pauline Epistles, and one for the rest (Acts, &c.).

Among the oldest fragments of Gospel codices at present known are the papyrus leaves numbered Oxyrhynchus 2 and Michigan 1570, each of which may be safely put into the 3rd century and be regarded as contemporary with *Oxyr.* 208+1781 (see above). Both are fragments of a codex, not of a roll, and *Oxyr.* 2 (which contains the greater part of Matt. 1, 1–20) seems to be the beginning of a volume. It is likely that when complete they only contained a single Gospel, though they may have been kept in a *capsa* with ' volumes ' containing the other canonical Gospels.

After the 4th century, vellum codices of the Gospel, more or less complete, survive in considerable numbers. Among the earliest are the Washington (or Freer) Gospels, known as W, which came from Egypt and may be safely assigned to the 5th century ; and Codex Bezae at Cambridge, a MS containing the Gospels, some of the Johannine Epistles, and the Acts, in Greek with a Latin rendering on the right-hand pages, which also appears to have been written not later than the 5th century.

Soon after the middle of the 2nd century Christianity began to spread into non-Greek-speaking lands, and we find in two instances the Gospel translated into the vernacular, *i.e.* into Latin and into Syriac.

The earliest Christianity of Rome was Greek-speaking, but in Roman Africa everyone spoke Latin, and it is highly probable that the earliest Latin translation of Christian Scriptures was made by the Christians of Carthage. This ' African Latin version ', as it is generally called, was extremely literal, almost a word-for-word rendering of the Greek, and therefore very valuable to the modern scholar, as it is generally possible to reconstruct the wording of the Greek from which it was translated. One fragmentary MS of this translation, almost (it

* So called by its discoverer C. Tischendorf. ℵ is the first letter of the Hebrew alphabet.

is believed) in the original form, survives in Cod. Bobiensis, now at Turin and known as *k*. It contains the latter half of Mark followed by the first half of Matthew, and is probably to be dated in the 4th century. Akin to *k* is Cod. Palatinus (*e*), now restored to Trent, which contains John and Luke and a good deal of Matthew and Mark, but its text is not so pure, and it was probably written nearly a century later.

Aramaic is a language akin to Hebrew, and dialects of Aramaic were spoken all over the Orient from Antioch and Palestine to the Tigris, a region sometimes known vaguely as 'Syria'. Syriac was the dialect of Aramaic spoken at Edessa, the capital of a little principality east of the Euphrates and due northeast of Aleppo. Christianity reached Edessa about A.D. 170, but at first the Gospel was only translated into Syriac in the form of the *Diatessaron*, a mosaic from all the Four Gospels. Somewhat later, about A.D. 200, the Four Separate Gospels were translated into Syriac and of this translation two MSS survive, one known as the Sinai Palimpsest (syr. *s*), the other as the Curetonian (syr. *c*). No MS of the Diatessaron in Syriac is extant, as this work was suppressed by ecclesiastical authority during the 5th century. Syr. *c*, now in the British Museum, is called after its first editor, Dr Cureton: it came from the great Syrian monastery in the Nitrian Desert (west of Cairo), and is not later than the 5th century. Syr. *s* is still at the monastery in Sinai, but it came there from a place half-way between Antioch and Aleppo. It is a palimpsest, *i.e.* it was taken to pieces (before it arrived at Sinai) and the old writing washed out. This was done in the year 778, in order to transcribe upon the leaves some lives of female saints, but the old writing is still mostly decipherable, and that seems to belong to the 4th century.

The Greek codices B, ℵ, and D, the Latin codex *k*, and the Syriac codex syr. *s*, stand in a class by themselves as the oldest and also on the whole the purest texts of the Gospels. Their witness requires to be corrected here and there by later texts, which seem occasionally to have preserved better readings. But, speaking generally, it is a question of minutiae. The two outstanding 'various readings' of general interest are: (1) the appendix added to complete the Gospel of Mark ([Mark] XVI, 9–20), which is found in most MSS, but not in B, ℵ, *k* or syr. *s*; (2) the story of the Woman taken in Adultery, which is no part of the Fourth Gospel and is absent from most ancient MSS, but it is found in D. The story seems to be one of a series of Sayings of Jesus, inserted in an ancient copy of the Gospels from some extra-canonical source, possibly from the elusive and mysterious 'Q' itself. Who knows?

Neolithic Camps

by E. Cecil Curwen

IT is extremely difficult to eradicate erroneous popular beliefs. Among such should be numbered the tendency hastily to attribute prehistoric hill-forts either to the Stone Age or to the Romans, most of such forts having in all probability been reared by the people of the Early Iron Age. The rapid progress of British prehistoric archaeology during the last two decades has shown this clearly, but it has also shown that the popular belief in the existence of neolithic camps is justified, though not in the specific instances that were expected.

Knap Hill

In 1908 and 1909 Mr and Mrs B. H. Cunnington carried out excavations in Knap Hill camp[1] (plan, fig. 1), between Marlborough and Devizes. They were struck with the fact that the rampart, which is deficient on the steepest side of the hill, is interrupted by at least six gaps, opposite each of which the ditch is broken by a causeway of undisturbed chalk—evidently an intentional feature. The sections of ditch between the different causeways vary from 42 to 122 feet in length, and the causeways themselves are 18 feet wide. In the filling of the ditch they found a strange, new type of pottery together with evidence of local flint-knapping, pieces of sarsen, and other relics of occupation. The pottery was rather coarse, gritty and hand-made, and included at least one round-bottomed bowl; it was also characterized by oblique incised lines on some of the rims, and by bosses or lugs. In several cases groups of shards were found in association with 'nests' of flint flakes, cores and hammer-stones. Mr and Mrs Cunnington came to the conclusion that these pieces of pottery 'cannot be of a later date than the Bronze Age, and it is quite likely that they are Neolithic'. They also added that 'until some distinguishing characteristic is recognized between undecorated pottery of the Bronze and Neolithic periods in

[1] 6 inch o.s. (Wilts), 35 sw. See *Wilts Arch. Mag.* xxxvii, 42.

PLATE I

WINDMILL HILL, WILTSHIRE, LOOKING WNW

By ——— of the Air Council, Crown copyright reserved

facing p. 22

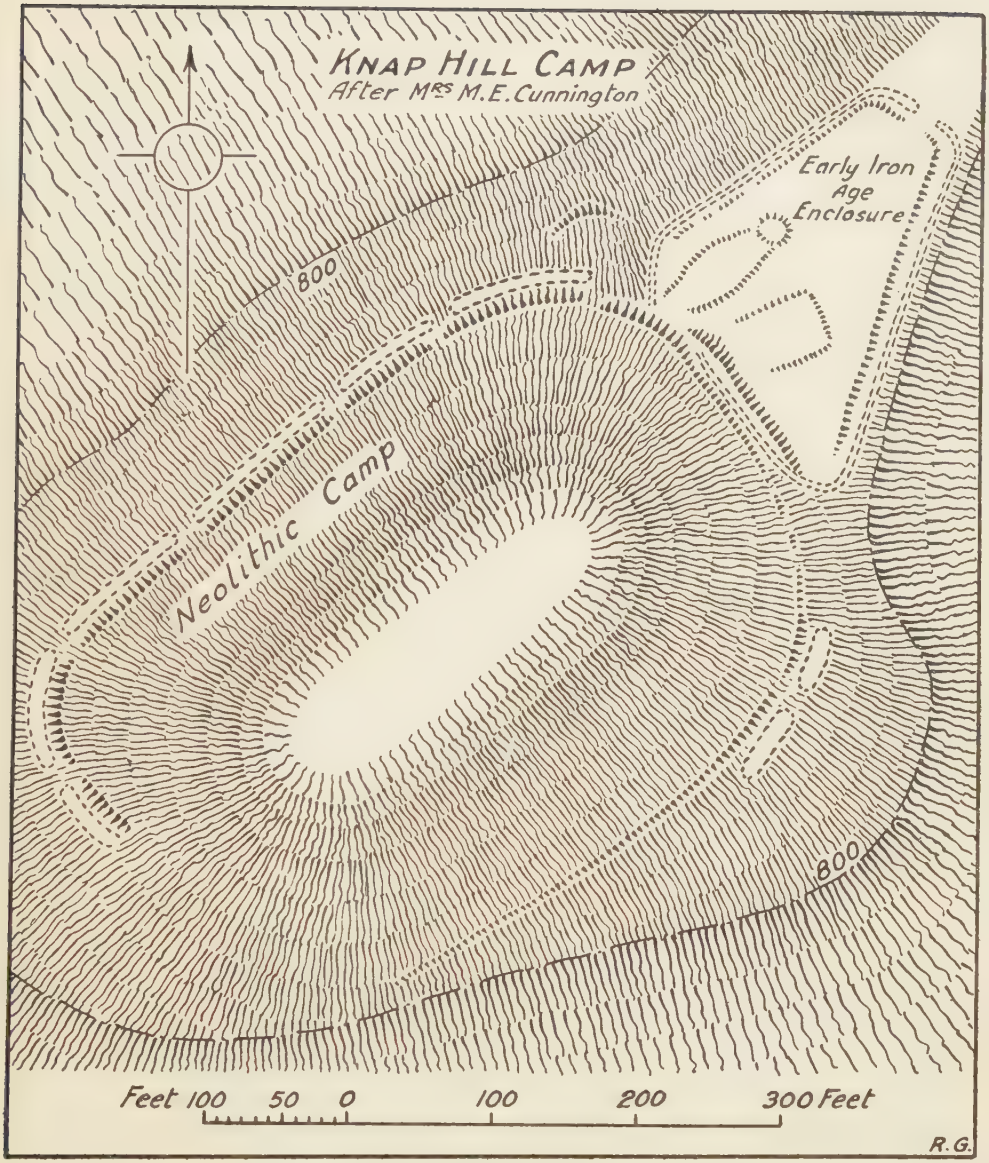


FIG. 1. KNAP HILL CAMP

With the exception of figs. 1, 5, 7, and 10 the plans are reproduced on a uniform scale

Britain, if indeed there be any such characteristic, it is impossible to form an opinion as to which period the pottery belongs '.[2]

Windmill Hill, Avebury

There the matter remained until 1925, when Mr Alexander Keiller began his remarkable excavations in the camp on Windmill Hill, near Avebury (Wilts),[3] to which the late Rev. H. G. O. Kendall had drawn attention. This hill had long been famous as a hunting-ground for flint implements, but it also has the remains of a camp, much reduced by ploughing, and in the same area are several large Bronze Age barrows. Mr Keiller has carried out excavations in the camp annually since 1925 with remarkable results. His reports are unfortunately not yet published, but he has most generously allowed me to reproduce here the information he has himself given me, together with a plan of the site, based on his survey (fig. 2). As stated above, the defences had been much reduced by ploughing, and the ditches filled up with silt, but Mr Keiller traced their original outline by means of a probe with the help of which he was able to distinguish between the undisturbed chalk and the rubble filling of the ditches. His plan based on these findings shows that the camp consisted of three not quite concentric rings of ditches, in most cases accompanied by the remains of ramparts on the inner side, and with considerable areas of the natural ground-level separating each ring of the defences. But the most remarkable feature, as at Knap Hill, is the presence of numerous causeways of undisturbed chalk which interrupt all three ditches at short intervals. (Plates I–II).

Mr Keiller has been systematically clearing out the filling from the ditches, laying bare the causeways, and recording the exact depth and position of every object found. The site is proving extremely prolific, the finds including pottery, implements of flint, bone and antler, grain-rubbers, saddle-querns and carved chalk. But the outstanding value of this site lies in the stratification of the finds which Mr Keiller is recording with meticulous care. The result has been to throw much more light on the study of the Neolithic period.

He is thus able to classify the different varieties of pottery found according to the depths at which they constantly occur in his sections, the oldest being, of course, the lowest. All the pre-beaker vessels have exclusively round bottoms. There are bowls of thin, hard, smooth, black ware, with thin upright lips and no lugs or shoulders of any

[2] *Wilts Arch. Mag.* XXXVII, 57.

[3] 6 inch O.S. (Wilts), 28 NW.

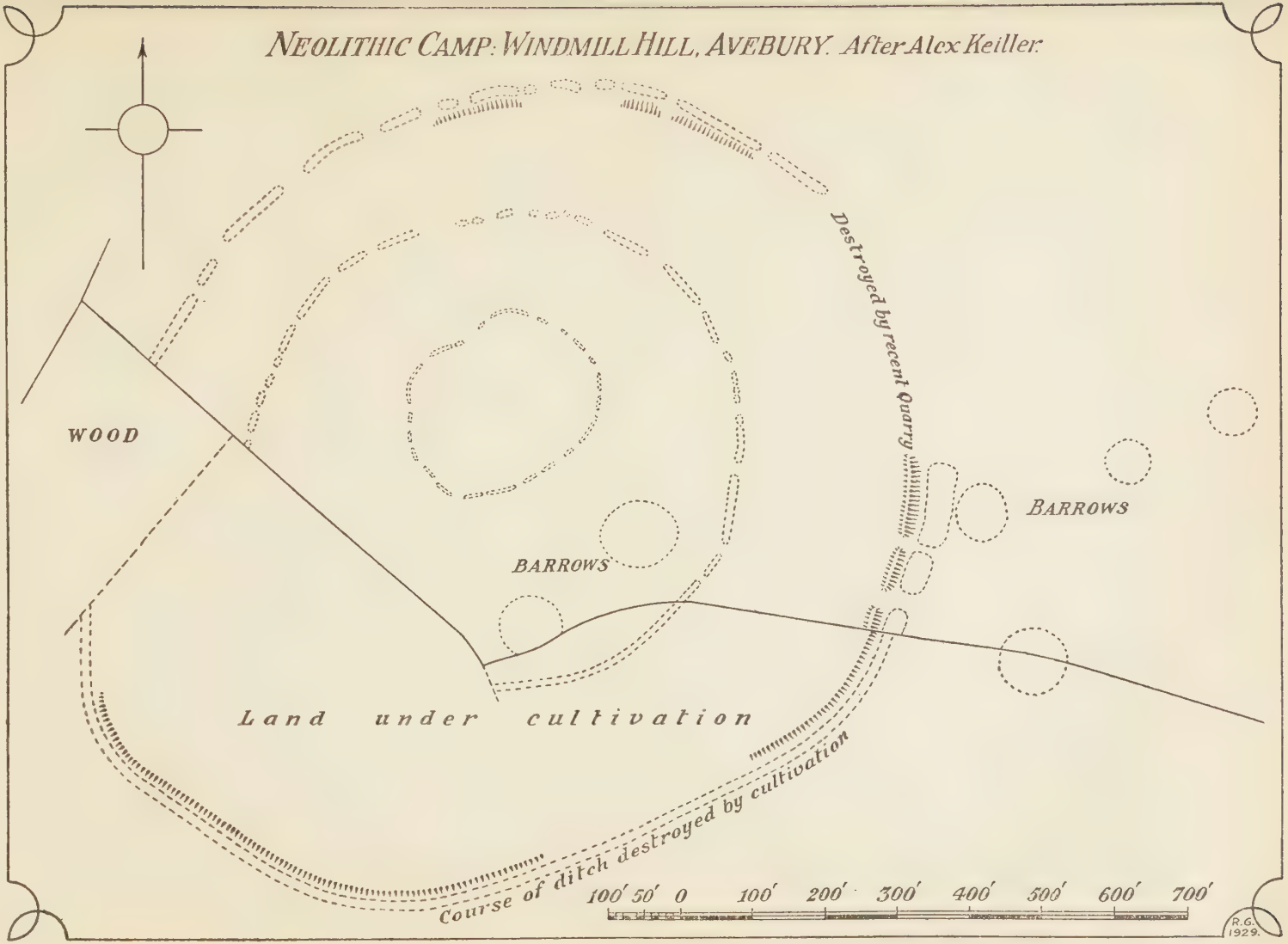

NEOLITHIC CAMP: WINDMILL HILL, AVEBURY. After Alex Keiller.
WOOD
BARROWS
BARROWS
Destroyed by recent Quarry
Land under cultivation
Course of ditch destroyed by cultivation
100' 50' 0 100' 200' 300' 400' 500' 600' 700'
R.G. 1929.

FIG. 2. NEOLITHIC CAMP, WINDMILL HILL, AVEBURY

sort, and no ornamentation. Other vessels possess lugs for handles; some of these are plain, while others are found vertically perforated, and ornament appears in the form of oblique parallel scorings on the rims (as at Knap Hill), and various forms of pin-prick decoration. In yet other vessels loop-handles occur, but no shoulders or carinations. All these varieties of pottery are exclusively found below a sterile layer in which no relics occur. Above this sterile layer is found the highly decorated ware of which the West Kennet long barrow pottery and the Mortlake bowl are well-known examples. In this type the entire exterior surface of the vessel is covered with ornamentation produced by multiple impression of various objects, chiefly the articular ends of the long bones of birds, as Miss Liddell has recently shown.[4] Closely associated with this comes the familiar beaker, and Mr Keiller tells me that his stratification shows that the West Kennet type is an early contemporary of the beaker, the latter surviving the longer of the two. Above this is nothing but odd scraps of Roman and other late varieties.

The varieties of pottery found below the sterile layer have been collectively described as the Windmill Hill type in contradistinction to the West Kennet, Mortlake or Peterborough type, which, as we have seen, is only found above the sterile layer. This shows that the distinction between these two classes of pottery is not merely a question of origin in different parts of Europe as Mr Thurlow Leeds has suggested, but it is also a matter of chronological sequence. The duration of time represented by the sterile layer cannot, perhaps, be determined with any certainty, but, whatever this may have been, the presence of the layer constitutes an absolute time-barrier between these two varieties of pottery—between the Neolithic period below and the Bronze Age above. Further discussion of the pottery will be deferred till examples from other sites have been described.

The relation of Mr Keiller's flint implements to his scheme of stratification is also of interest. Polished flint axes occur below the sterile layer, and are associated with the loop-handled pottery. Arrowheads, leaf-shaped, lozenge-shaped and chisel-pointed (*petit tranchet*), occur at all levels abundantly, but the barbed-and-tanged variety is confined to the beaker levels. One-barbed arrowheads are found lower than the barbed-and-tanged, but not in the lowest levels. Flint saws, scrapers of all shapes, and knives (*dos rabattu*) with straight or curved blades, are extremely common at all levels. The saws consist of simple flakes with

[4] ANTIQUITY, 1929, III, 283–91.

one or more edges worked up into minute serrations, 25 or 30 to the inch, some of them bearing a narrow line of lustre which results from the cutting of wood. Other similar flakes have edges that have been irregularly splintered by cutting hard substances. Besides these are small flint picks like ' Thames picks ', but smaller, and very numerous hammer-stones. ' Fabricators ' are rare, borers very rare, and calcined flints (' pot-boilers ') exceedingly scarce. Many of the flint tools had been damaged by fire.

Implements of red deer's antler include the familiar picks, and also rakes with two or even three prongs. There is also a remarkable series of combs, each formed from the beam of an antler by cutting one end longitudinally so as to produce a ring of ' teeth ' surrounding the medullary canal (plate III). The purpose of these combs is assumed to have been the same as that of the very similar Esquimaux *kúmotĭn*, which is used for combing loose hairs from deer-skins.[5] Pins and awls of bone are numerous, the latter probably having been used in the ornamentation of pottery and in perforating the lugs. One burnisher made of bone resembles those hitherto only found in the ditch of the Avebury ' temple '.

Evidence of agriculture is supplied by very numerous grain-rubbers, both whole and fragmentary, consisting of top-stones and lower stones of saddle-querns. Perhaps it would be too much to suggest that certain pieces of chalk bearing scoring and rudimentary patterns are indicative of aesthetic feeling, but superstition is evidenced by a nicely carved chalk phallus which may be compared to a bone example found at the Trundle (referred to below).

A study of the animal bones from the excavations indicates the fauna of the time. By far the commonest was the ox, a small beast with rather long horns, and quite distinct from the breed which prevailed in the Early Iron Age. The other animals include sheep, goat, pig, red deer, roe deer, two or more breeds of dog, fox, hedgehog, and some other small animals. Even the dogs' droppings were recovered, their form having been preserved by impregnation with lime salts, the result of a diet of bones. The absence of horse in all neolithic sites so far examined is remarkable.[6]

Finally, a study of the charcoals yields a picture of the contemporary

[5] J. W. Powell in the *Ninth Annual Report of the Bureau of Ethnology* (Washington, U.S.A., 1887–8), 300–1. Reference kindly supplied by Mr Keiller.

[6] Horse was found at Peterborough with pottery of Mortlake type and beakers. *Archaeologia*, LXII, 335.

local trees, and the types of land-snails present betray the fact that at that period the climate was moist.

Abingdon

In 1926 Mr Thurlow Leeds began the examination of what must originally have been a neolithic promontory-fort situated on a low-lying tongue of land beside the Thames near Abingdon.[7] Across the base of the promontory the remains of a ditch, characteristically interrupted by several causeways, were discovered during the process of digging gravel. In the ploughed field to the north of the modern road is a dark line in a slight hollow which may possibly represent a second and parallel line of defence across the neck of the promontory. The gradual destruction of the neolithic ditch by the gravel-diggers has been watched and investigated by Mr Leeds and his helpers, and very much useful material has been recovered. In the main the finds agree closely with those of Mr Keiller from Windmill Hill, but in the pottery there is a slight difference in that a large proportion of the vessels possess a slight shoulder or carination from two to three inches below the rim, with a slightly hollowed neck and a tendency for the rim to be heavy and everted. Perforated lugs and loop handles are common, together with ornamentation resembling that at Windmill Hill, viz. oblique scorings on the rims and various forms of pin-prick decoration. While the majority of these vessels had round bottoms, a few flat bottoms were found.

The resemblances between this pottery and that from Windmill Hill are numerous and marked, but the differences noted above are sufficient to warrant the type being placed in a sub-group and called the Abingdon type.

The other finds at Abingdon resemble those from Windmill Hill. Polished flint axes, often rechipped, arrowheads of leaf and lozenge shape, part of a flint dagger and of a finely worked, curved flint knife of rare type, scrapers and flint saws have all been found, together with hammer-stones, grain-rubbers, bone awls and antler combs.

Whitehawk Camp, Brighton

In January 1929, the writer was associated with Mr R. P. R. Williamson in carrying out excavations for the Brighton and Hove Archaeological Club in Whitehawk Camp (plan, fig. 3) on the Brighton

[7] 6 inch O.S. (Berks), 10 NE. Described in *Antiq. Journ.* VII, 438–64 ; VIII, 461–77.

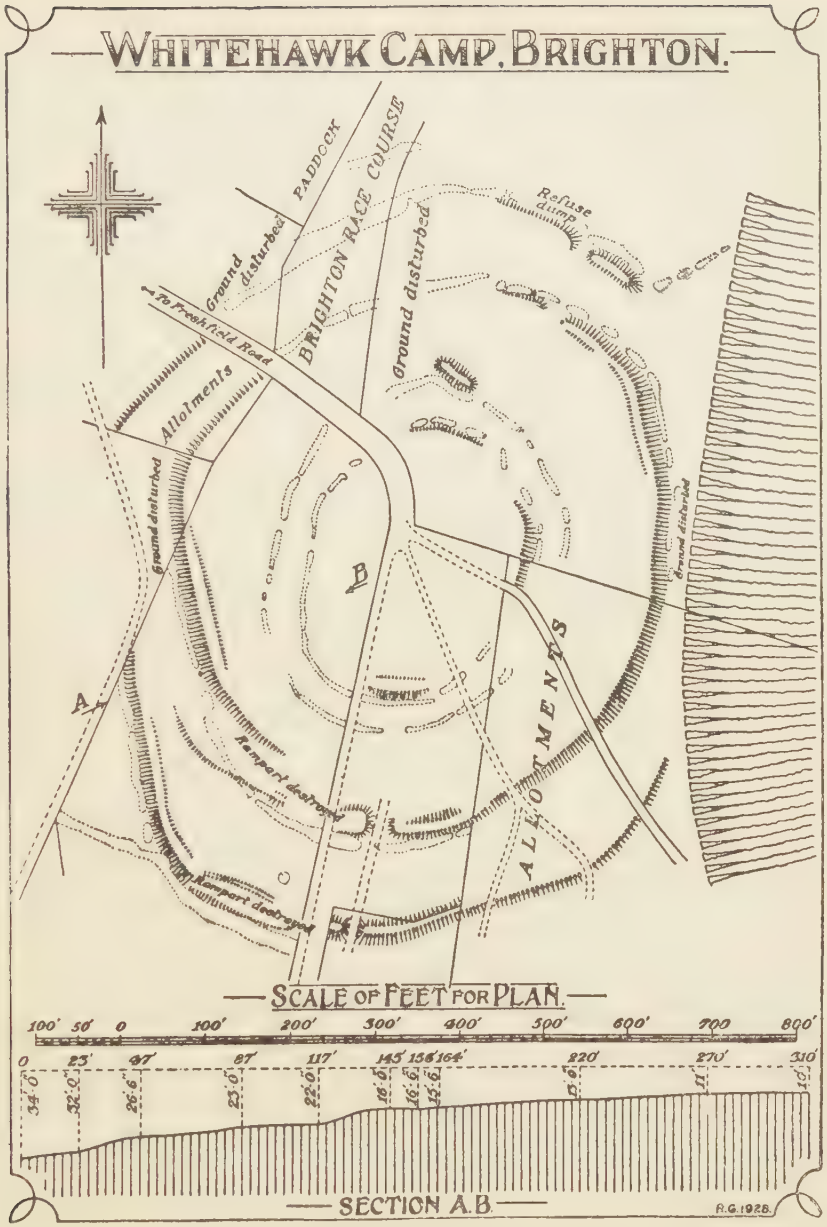


FIG. 3. WHITEHAWK CAMP, BRIGHTON

Reproduced from 'Prehistoric Sussex' (Homeland Association) *by permission*

race-hill.[8] This was originally a large camp like that on Windmill Hill, Avebury, and consisted of four concentric rings of ditches interrupted by causeways and separated from one another by stretches of the natural ground-surface (see plan). On the east side of the ridge, where the ground falls away very abruptly and steeply the outermost line of defence is deficient, while on the northeast a radially placed ditch, also interrupted, cuts off the triangle of level ground between the third ditch and the brow of the declivity, a somewhat similar arrangement being observed on the southwest of the camp. Unfortunately the site has suffered sadly under the encroachment of allotments, and some of it has been levelled in connexion with the race-course. Being situated, too, right on the edge of a large town, the danger of further destruction by building is ever present.

About half of the circuit of the two innermost ditches has been deliberately levelled and is therefore quite invisible on the surface. In making the accompanying plan the course of these lost ditches was recovered by means of percussion of the ground with a rammer—a process conveniently referred to as ' bosing ',[9] and one which enables a distinction to be made between a subsoil of undisturbed chalk and the loose material filling a ditch or pit. Bosing over the former gives a sound like ' thud ', while over the latter it resembles ' thoomp '. Not only can the limits of hidden ditches be mapped out in this way with a line of pegs, preparatory to surveying, but an apparent causeway interrupting a visible ditch can be tested as to whether it really does consist of undisturbed chalk or whether it is the result of more recent interference by which a section of the rampart has been thrown into the ditch. The ' boser ' will almost always decide this point, and for this reason the writer invariably uses this method for testing the solidity of alleged causeways in supposed neolithic camps.

The ' boser ' can easily be made out of a narrow cylindrical tin filled with about 8 lbs. of lead, a short piece of iron piping being embedded in the lead to serve as a socket for an ash handle. This is an improvement on a navvy's rammer as the latter has a wide base ; the narrower the base, the more concentrated is the blow, and the clearer is the percussion note obtained, especially on a sloping surface. The

[8] 6 inch o.s. (Sussex), 66 sw. Report to appear in *Suss. Arch. Coll.* LXXI (August 1930).

[9] See ANTIQUITY (1928) II, 258 ; (1929) III, 231. The term is derived from a northern Irish provincialism, ' bose ' (? spelling), an adjective meaning ' hollow-sounding '.

ideal would be to have a hemispherical base, but this is not easily obtained. An instrument of this type is absolutely invaluable to the field-worker in chalk country ; the writer has not yet had sufficient experience of it on other soils to be able to gauge its usefulness there, but it is probable that it will serve to distinguish compact and loose soils under most circumstances. Its chief drawback is its weight when carried, but this can very largely be obviated by having a sling made for it : the base of the tool can rest in a leather socket which is slung from the shoulder by a loop of 4-inch webbing, the handle being steadied by passing through a small loop attached to the webbing higher up.

In using this instrument the handle should not be gripped by the hand at the actual moment of impact with the ground, as that jars the arm and damps the vibrations. The boser should either be allowed to drop from the hand or else be thrown down with a flick of the wrist and caught again on the rebound. The resulting vibration is appreciated not only by the ear as ' thud ' or ' thoomp ', but by the feet as well. The method is useless on cultivated ground as the boser simply sinks into the mould without producing any vibration, and it is also defeated if the undisturbed chalk is covered by a *deep* layer of mould under the grass, as this itself yields a booming note.

The plan of the ditches at Whitehawk Camp was worked out in this way, and the solidity of the causeways verified. Subsequent excavation confirmed these findings. Parts of the three innermost ditches were opened up, yielding a wealth of neolithic pottery and associated remains, very closely resembling those already described. At least 80 lbs. of neolithic pottery were recovered in five weeks' digging by two men. Most of this came from a filling of black vegetable mould above the primary chalk silting, though fragments of the same type of pottery occurred also in the latter, proving that the pottery was coeval with the construction of the camp. In general the characteristics of the vessels resemble those of the Abingdon type, except that loop handles and flat bottoms were entirely absent. Vertically perforated lugs and oblique scorings on the rims were common, together with flutings, parallel scorings on the body, finger-nail impressions and even multiple triangular impressions. These latter almost suggest a step in the direction of the West Kennet type, but no true West Kennet shards were found. The majority of the vessels have slight carinations, and one closely resembles one of the Scottish neolithic bowls described by Mr Callander.[10]

[10] J. Graham Callander, ' Scottish Neolithic Pottery ', *Proc. Soc. Antiq. Scotland*, LXIII, fig. 37 (p. 56).

Though great care was taken in digging by levels the pottery was found not to be in any way stratified, parts of the same or similar vessels occurring both high up and low down in the filling. This probably indicates contemporaneity of the various forms of vessels found, and suggests that the site was occupied for a short time by a large population.

Here again the same types of flint implements were found. These include re-chipped polished flint axes, arrowheads of leaf and lozenge form, one *petit tranchet*, scrapers, saws, bone awls, grain-rubbers, and a huge chalk weight, perforated at one end and weighing 32 lbs. Other smaller perforated pieces of chalk may perhaps have been loom-weights. The study of the animal bones, charcoal, and mollusca give results in agreement with those obtained at Windmill Hill.

The Trundle, Goodwood[11]

The interest of this site (plan, fig 4) lies chiefly in the fact that an Early Iron Age hill-city has been constructed over a neolithic camp, the existence of which was not suspected until it was revealed by an air-photograph in 1925. The writer carried out some excavations there in 1928 which showed that the later hill-city was occupied from late Hallstatt times till the beginning of the La Tène III (say, 500–50 B.C.). The plan of the neolithic ditches was worked out by bosing, as at Whitehawk, and these results were confirmed by the digging. These defences consist of an inner ring, relatively strong, with a second line in two pieces overlapping one another and inclined to straggle. A loop of a third and outermost ditch is traceable outside the Early Iron Age ramparts on the north, from which it seems likely that the latter overlay the former for the rest of the circuit of the camp. All the neolithic ditches are interrupted by numerous causeways, opposite some of which there are corresponding gaps in the ramparts. (Plate IV).

It is probable that not enough digging has yet been done in the neolithic ditches at the Trundle to justify generalization as to the type of objects found there. One can only say that so far the pottery resembles the earlier of the Windmill Hill types, though perforated lugs, loop handles and carinations are absent, and ornament sparse (plate VIII). No polished axes or arrowheads have yet been found—in fact, very little worked flint at all, though flakes are fairly numerous, including flint saws. A beautifully carved bone phallus shows signs of having been severed by means of a flint saw. Grain-rubbers, bone awls, and two pieces of artificially

[11] 6 inch O.S. (Sussex), 48 NW. See *Suss. Arch. Coll.* LXX, 32–85.

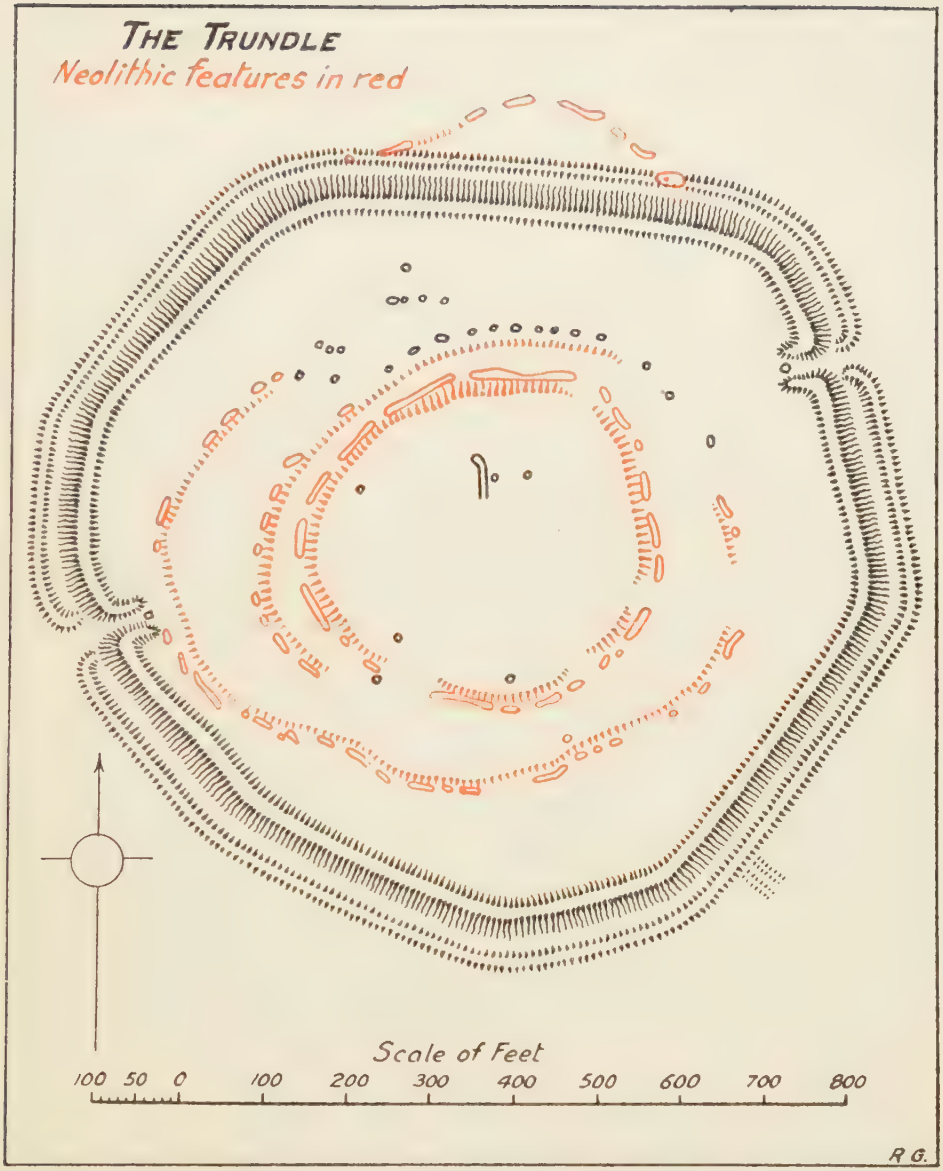


FIG. 4. THE TRUNDLE, GOODWOOD, NEOLITHIC AND EARLY IRON AGE CAMPS

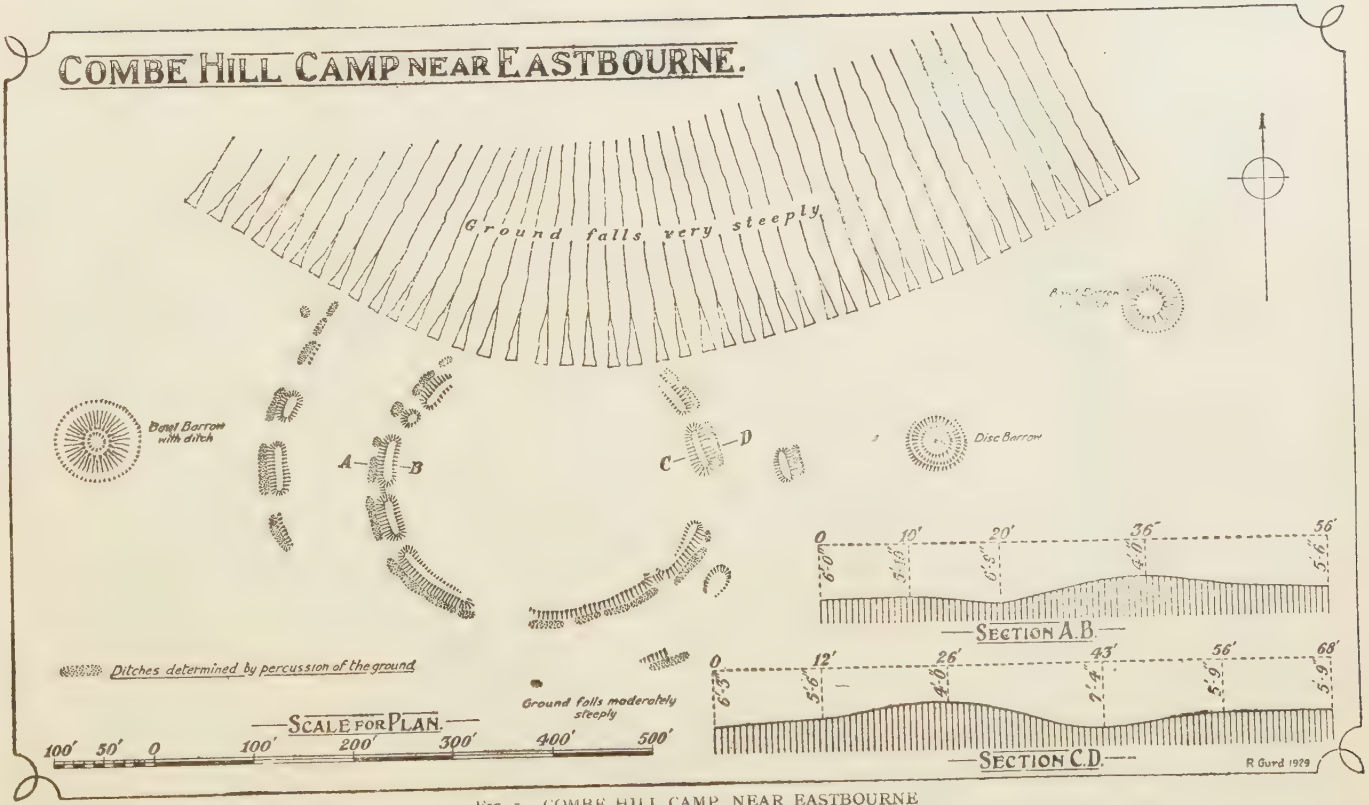


FIG. 5. COMBE HILL CAMP, NEAR EASTBOURNE

Reproduced from 'Prehistoric Sussex' (Homeland Association) *by permission*

scored chalk resemble similar specimens enumerated above, and the findings with regard to flora, fauna and climate agree with those obtained at Windmill Hill. One chalk cup and a fragment of another resemble specimens from Windmill Hill and from the flint mines at Cissbury and Grime's Graves.

When examining the point at which the loop of outer neolithic ditch disappears under the Iron Age rampart the skeleton of a young woman was discovered buried in a crouched position under a small pile of chalk blocks. Nothing was found with the skeleton, but the position of the burial was interesting because the body has been deposited in a shallow oval grave just below what was at that time the surface of the silting filling the neolithic ditch, and it had subsequently been further buried under the outer of the two Iron Age ramparts. The burial, which can scarcely be later than Early Bronze Age in date, must therefore have been considerably later than the time of the occupation of the camp, for the ditch had already silted up to the level at which it remained throughout the Bronze Age.

This completes the list of neolithic camps which have so far been examined by the spade. A few others, however, show the superficial characteristics associated with proved neolithic sites, and these will now be considered.

Combe Hill, near Eastbourne

The curious little camp on Combe Hill (plan, fig. 5),[12] near Eastbourne consists of an inner ring, deficient on the steep north side of the hill, with portions of a second line at a few yards distance to east and west. All the ditches are interrupted by causeways at short intervals, and bosing has shown that these are of undisturbed chalk and are not modern disturbances of the ground. Most of them have corresponding gaps in the ramparts. The camp is situated on a plateau between two slight eminences to east and west, the ground falling precipitously to the north and less steeply to the south. Mrs Keiller first drew the writer's attention to the possibility of this camp being neolithic.

Robin Hood's Ball, Shrewton

Near Robin Hood's Ball in the parish of Shrewton, Wilts,[13] is a small camp (plan, fig. 6) consisting of two concentric rings of interrupted

[12] 6 inch O.S. 79 NE. See *Suss. Arch. Coll.* LXX, 209–11.
[13] 6 inch O.S. (Wilts), 54 NW.

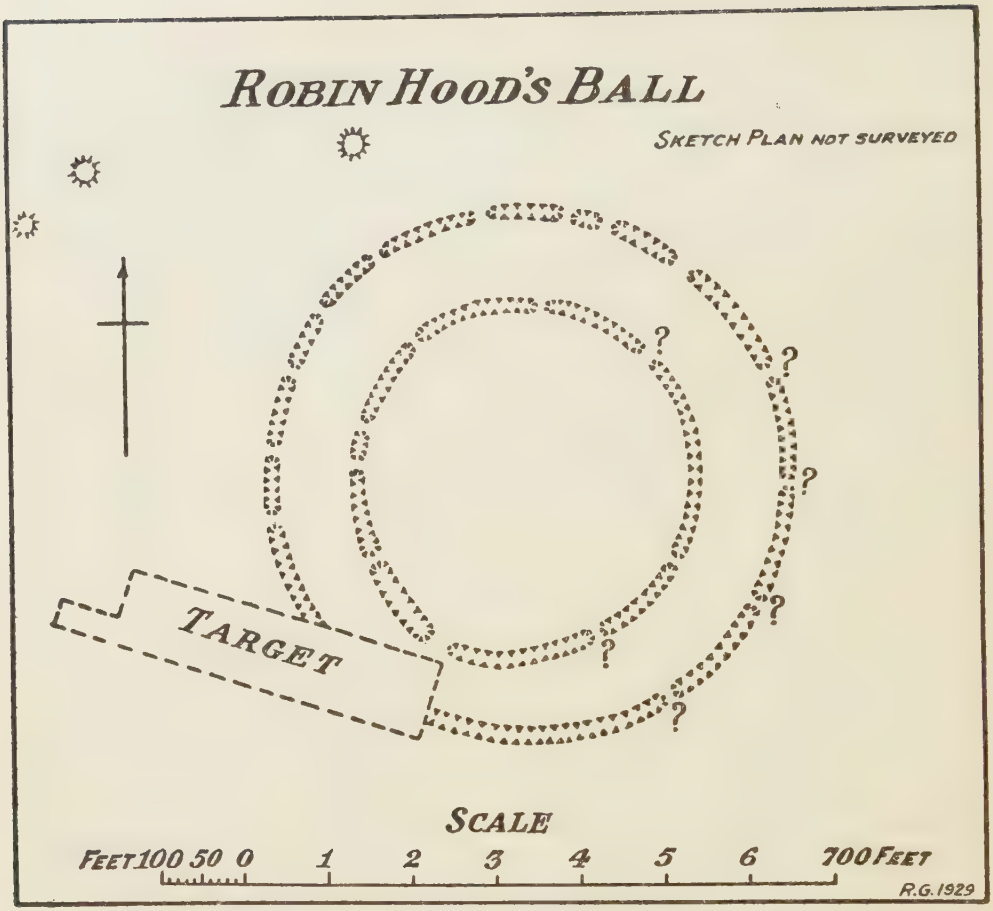


FIG. 6. NEOLITHIC CAMP NEAR ROBIN HOOD'S BALL, SHREWTON

ditches. The accompanying sketch-plan is not a survey, but is based on notes supplied by Dr Eliot Curwen. The causeways in this case have not been tested by bosing, and some which are open to doubt are marked with a query on the plan.

The outer ditch has been cut into by the construction of rifle-butts, its section being visible in the side of the trench behind the targets. Mr Keiller tells me that objects have been found here suggestive of neolithic occupation.

Yarnbury

We now come to a series of three sites which have been occupied in at least two periods—to judge from surface appearances—probably in the Neolithic period and in the Early Iron Age, as we have seen was the case at the Trundle.

Yarnbury[14] is a magnificent plateau camp on Salisbury Plain, surrounded by enormous ramparts which are almost certainly to be referred to the Early Iron Age. Within this area the air-photograph (plate v) shows quite distinctly a faint circle, partly obliterated on one side by the site of a recent sheep fair which looks like a gridiron in the photograph. On the ground the ramparts of this inner circle are most easily traced on the west side where the bank stands five to six feet above the ditch. Causeways are also visible, and these have stood the test of the boser.

The Iron Age ramparts are breached by six entrances, of which only one is original, the remaining five having been made by farmers and drovers in connexion with the annual sheep fair. In the case of these five breaches the ditches have been filled up with the material obtained by cutting through the banks, but these spurious causeways yield a deep booming note to the boser, contrasting markedly with the dull thud obtained on the causeway of the one original gate of the camp. In the middle of the latter and in line with the end of the fosse on either side is a short length of a smaller ditch, about 27 feet in length; the boser reveals that it is actually about three feet longer than appears to the eye. This ditch may perhaps have been a feature of the Iron Age gateway, comparable to a pit somewhat similarly placed in each entrance at the Trundle (Goodwood); but it is also possible that it may be the sole relic of an outer ring of the neolithic camp, all the remainder of which may have been overlaid by the later Iron Age ramparts.

[14] 6 inch O.S. (Wilts), 59 NE. Described by Crawford and Keiller, *Wessex from the Air*, 68–71.

Scratchbury

Scratchbury[15] (plate VI) is another immensely strong hill-fort of Early Iron Age type, some $2\frac{1}{2}$ miles from Warminster. Here again within its area traces of an inner enclosure can be seen, the northern part being preserved best, and here several causeways are distinctly visible in the air-photograph. These causeways have been tested by the boser and proved solid. The most peculiar feature is that the inner camp seems to be semicircular in plan, the straight side being prolonged westwards till it disappears under the Iron Age ramparts. This straight side appears to be a ditch and not a lynchet as it was first thought to be, but in this part the ground is covered with too great a depth of mould to make bosing certain.

Rybury

Rybury camp[16] (plate VII and fig. 7), situated just above the Early Iron Age village at All Cannings Cross, Devizes, presents an interesting complex of earthworks. It is situated on an abrupt eminence connected by a narrow neck with higher hills to the north, and by another narrow neck with a sharply rising knoll to the south. This knoll is also approached by gentle spurs running up from south and east. The extreme summits both of Rybury Hill and of the southern knoll have been extensively dug over in recent times—I understand that a particularly hard seam of chalk was being sought. The defences of Rybury Camp are relatively weak, and consist of a single vallum with a ditch on the *inner* (i.e., upper) side. This peculiar arrangement is uncommon in camps, but can be exactly paralleled in the case of Wolstanbury in Sussex where the writer was excavating in October 1929[17]. Sections dug through the ditch at Wolstanbury proved that this camp was constructed not later than the La Tène I period (400–250 B.C.) of the Early Iron Age, so that it is quite likely that Rybury may be assigned to the same period, in which case it would be contemporary with the All Cannings Cross village. At Rybury there is also an inner ring, but it has been so much disturbed by the recent chalk-diggings that even the boser failed to detect the presence or absence of causeways that might indicate a neolithic date. That we must not hastily assume it to be neolithic is,

[15] 6 inch O.S. (Wilts), 52 NW and SW. Described by Crawford, *Air Survey and Archaeology* (2nd edn.), 36.

[16] 6 inch O.S. (Wilts), 35 NW.

[17] 6 inch O.S. (Sussex), 52 NE. The report will possibly appear in *Suss. Arch. Coll.* LXXI (August 1930).

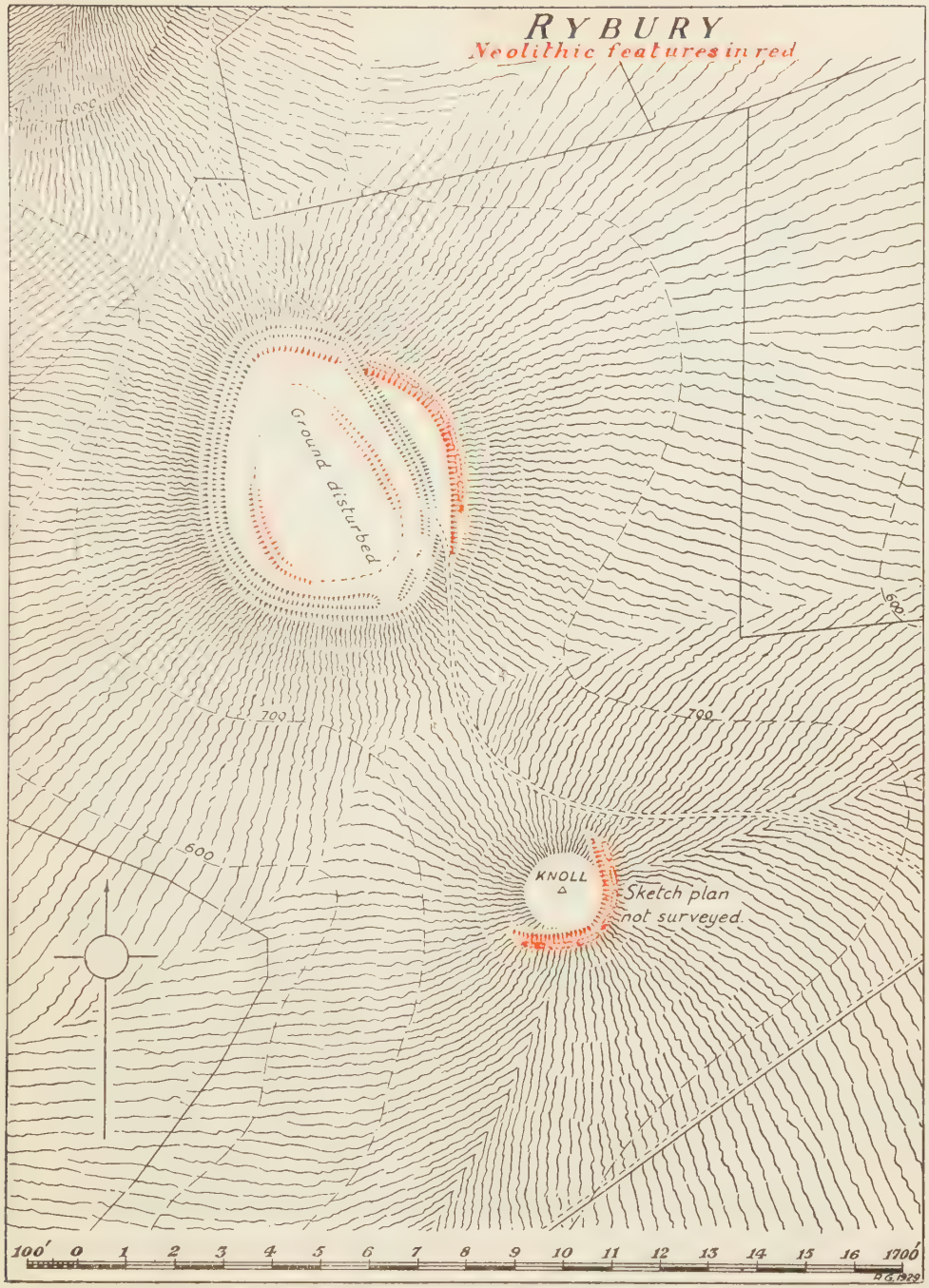


FIG. 7. RYBURY; SUPERIMPOSED CAMPS OF TWO PERIODS

however, shown by the fact that Wolstanbury also has an inner ring which has turned out on excavation to be apparently of the same period as the outer ring, no evidence pointing to a neolithic date having been found.

At Rybury, however, there are in addition two other lines of defence outside the supposed Iron Age rampart. One defends the east side of the hill and runs under the later rampart at the point where the latter makes a sharp bend to follow it. The ditch of this defence is interrupted in several places by visible causeways which have also stood the test of the boser. The other line of defence curves round the east and south sides of the crest of the southern knoll, evidently being intended as an outwork to the main camp, and so placed as to defend the knoll against approach along the easy spurs on the east and south. The ditch here, too, is interrupted by at least six causeways which are positive to the boser. There can be little doubt that these interrupted ditches are neolithic, and that the knoll was held as an outpost by the defenders of the camp.

In the accompanying plan (fig. 7) the neolithic features are shown in red, and the Early Iron Age in black, but the innermost ring must be considered doubtful, the odds being in favour of neolithic. The plan itself is based on Messrs. Crawford and Keiller's air-photograph, together with the writer's own observations on the ground, aided by bosing. But it must be understood that it is not a survey, and that the details of the earthwork on the southern knoll are only sketched in very approximately, as that part was not included in the air-photograph.

Other Possible Sites

There must assuredly be countless other neolithic camps in the country awaiting discovery, now that their surface characteristics are known. A few possible or doubtful sites must be mentioned in passing.

(1) The Brown Caterthun, Forfarshire.[18]—This fort consists of four concentric rings of ramparts, some being accompanied by ditches, several gaps and causeways being visible on the surface. Mr Keiller knows it well and tells me that he is a little doubtful as to its being neolithic.

(2) Dinas in Trefeglwys,[19] near Llanidloes, Montgomeryshire.—

[18] 6 inch O.S. (Forfar), 19 SE. Described by Dr D. Christison in *Early Fortifications in Scotland*, 256–263, with plan.

[19] 6 inch O.S. (Montgomery), 41 NW.

WINDMILL HILL, WILTSHIRE: MIDDLE DITCH, SHOWING SMALL CAUSEWAYS
Ph. Alex. Keiller

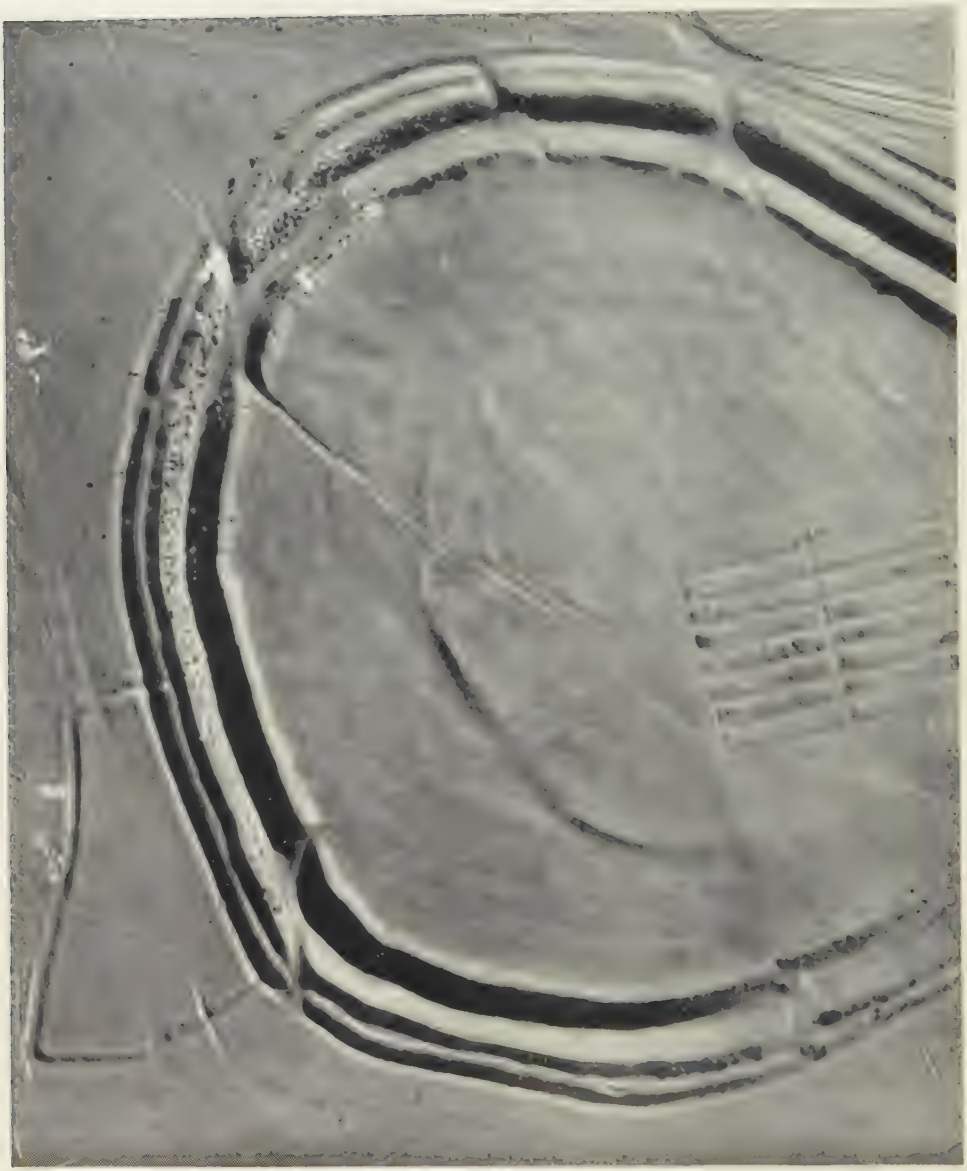
facing p. 40

NEOLITHIC ANTLER-COMB FROM WINDMILL HILL
Ph. Alex. Keiller

PLATE IV

THE TRUNDLE, SUSSEX

By permission of the Air Council, Crown copyright reserved



YARNBURY CAMP, WILTSHIRE

By permission of the Authors and Publishers of 'Wessex from the Air' (*Oxford University Press*)

PLATE VI

SCRATCHBURY CAMP, WILTSHIRE

By permission of the Air Council, Crown copyright reserved

RYBURY CAMP, WILTSHIRE, LOOKING SOUTH

By permission of the Air Council. Crown copyright reserved.

PLATE VII

FIG. 1. NEOLITHIC BOWL FROM THE TRUNDLE, SUSSEX
Note the round bottom, plain rim and ledge-handles
Ph. E. Cecil Curwen

FIG. 2. NEOLITHIC BOWL FROM WINDMILL HILL, WITH VERTICALLY PERFORATED LUGS
Ph. Alex. Keiller, *by permission*

NEOLITHIC VESSELS FROM ABINGDON. NOTE CARINATION AND LOOP-HANDLES

By permission of E. T. Leeds

This fort, to which Mr W. J. Hemp has drawn attention, consists of somewhat scattered and disjointed ramparts defending a narrow and abrupt ridge. There are several apparent gaps in the ramparts.

(3) MAIDEN BOWER, near Dunstable, Bedfordshire.[20] A single line of bank and ditch constitutes this fort, but its plan as published in the Victoria County History of Bedfordshire looks suggestive. An antler comb, similar to those from Windmill Hill and Abingdon, was found here,[21] and the site is a well-known hunting-ground for flint implements. The writer has not had an opportunity of seeing the site, but Mr C. W. Phillips has recently visited this camp and tells me that he can find no superficial evidence of a neolithic date.

(4) BUZBURY, between Blandford and Wimborne, Dorset.[22]—The arrangement of concentric rings with gaps is suggestive, together with the fact that Mr Crawford has found in the interior several shards, including perforated lugs.[23]

(5) BARKHALE DOWN, Bignor, Sussex.[24]—This camp, which was recently discovered by Dr J. A. Ryle, consists of a single ring with a short length of a second and parallel line a few yards to the southeast. Bosing seems to indicate the presence of causeways, but the site is so overgrown with heather and bracken and a scrub of thorn and other bushes that this needs confirmation. Dr Ryle hopes to examine it with the spade during the next few months.

(6) Near OVERTON HILL, Avebury,[25] an air-photograph has revealed what look like portions of two concentric ditches in a ploughed field, and these ditches appear to have been interrupted by the erection of two round barrows which are believed to be Bronze Age in date. If this is actually so, it is strong presumptive evidence that the ditches belonged to a neolithic camp. The site is just north of the Bath road where it crosses the first ridge to the west of the Ridgeway.

---

[20] 6 inch O.S. (Beds.), 32 NW. Described in *Vict. Co. Hist. Beds.*, I, 160, 269.

[21] *Ibid.* 169, fig. 60.

[22] 6 inch O.S. (Dorset), 24 NE and SE. Described by Heywood Sumner, *Earthworks of Cranborne Chase*, 25 with plan; and by Crawford and Keiller, *Wessex from the Air*, 64–5 with air-photo.

[23] *Loc. cit.* 64.

[24] 6 inch O.S. (Sussex), 49 NE.

[25] 6 inch O.S. (Wilts), 28 SW.

Neolithic Camps in France

Déchelette says that neolithic camps are numerous in the hilly parts of France, and cites six examples.[26] M. Piroutet supplements this with a list of neolithic camps in Franche Comté,[27] but as very little description is given of the actual earthworks, and as Déchelette says that most of these sites have been successively occupied in different periods, one cannot be certain that the existing remains date in every case from the neolithic period, even though characteristic neolithic material may have been found there. Cissbury provides a good example of this in our own country, for here a later camp of Early Iron Age type has been superimposed upon neolithic flint-mines, for which reason undiscerning folk still speak of the camp as neolithic. Déchelette says: 'At the present time it would be premature to pretend to determine the distinctive characters of neolithic fortification, or even to seek to compile a list of enclosures constructed in that period'. Neither he, however, nor any other French writer says anything about numerous entrances or causeways. The writer has not yet had an opportunity of examining any of these camps personally, so we must be content with a consideration of the camp (plan, fig. 8) of Peu-Richard, near Thénac in Charente Inférieure, which was excavated by Baron Eschassériaux about 1882.[28] This camp consists of a more or less concentric arrangement of ditches, more irregularly disposed than those of the English examples. There is a small inner circle surrounded at a little distance by two, and sometimes three, parallel ditches, 20 to 30 feet apart, each with its accompanying rampart. Apparently there are not more than four entrances, though it is possible that minor causeways, if such existed, may have been overlooked. The whole area of the camp is about 17 acres, thus approximating to that of the outer limits of the camps at Windmill Hill, the Trundle and Whitehawk. The outer ditch is about 20 feet wide and 10 feet deep.

---

[26] Déchelette, *Man. d'Arch.* I, 368–71, 352–3. Camp de Chassey (Saône-et-Loire and Côte d'Or), Peu-Richard (Charente Inf.), Campigny (Seine Inf.), Catenoy (Oise), Camp-Barbet (Oise), and Mont Vaudois (Haute Saône). In the last-named neolithic burials were found in the rampart (p. 369).

[27] *L'Anthropologie* (1903), XIV, 450–2. Grandchamps (Cernans), Cornaboeuf (Cluny), Saint-André, Mont-de-Mesnay, Fort Belin, Château de Poupet, Roche d'Or (Besançon).

[28] *Matériaux pour l'Histoire de l'Homme*, 1882, p. 505. For full bibliography see Déchelette, *op. cit.* 653.

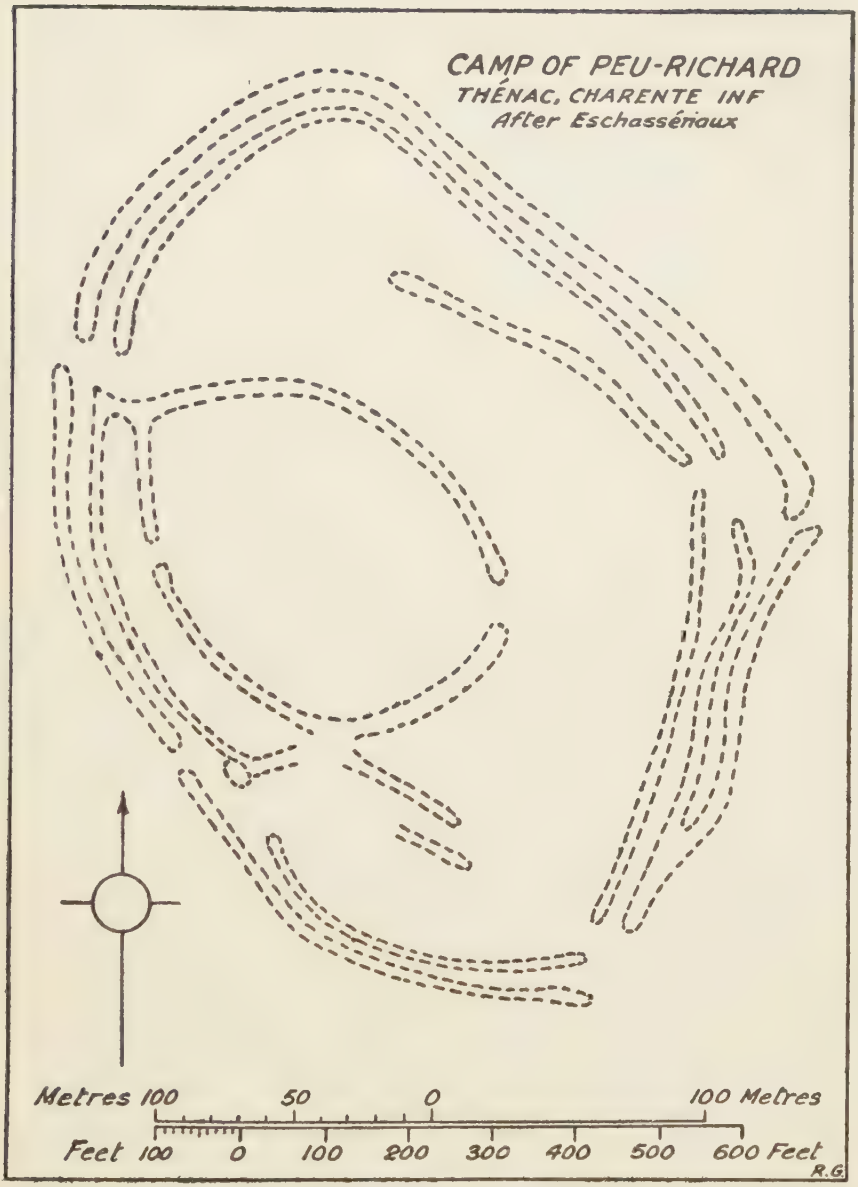

CAMP OF PEU-RICHARD
THÉNAC, CHARENTE INF
After Eschasséraux
Metres 100 50 0 100 Metres
Feet 100 0 100 200 300 400 500 600 Feet
R.G.

Fig. 8. CAMP OF PEU-RICHARD

The objects found[29] include a considerable quantity of pottery, some of which closely resembles examples from the dolmen of Availles in Brittany, possessing an ornament resembling a pair of spectacles, of which the bridge forms a loop-handle of rather low relief. Other pieces were characterized by lugs, perforated knobs, and thumb-marks. The flint implements include polished axes, a mace, picks, hammer-stones, grattoirs, burins, *petits tranchets*, flint saws, and triangular flint 'points'. These latter may be triangular sickle-teeth, or possibly arrowheads, though it is stated that no arrowheads were found. It may be, however, that only barbed arrowheads were visualized under this term. Of bone implements there were awls and polishers, the latter recalling finds at Avebury. The fauna consisted of ox, sheep, goat, boar, hare, badger and deer. Here again, as in Britain, the complete absence of horse is noteworthy, and is specially remarked by M. Chauvet. All these finds were attributed at the time to the first part of the neolithic period, but unfortunately stratified digging was not practised at the time when Peu-Richard was excavated.

Neolithic Camps in Germany

There are two outstanding examples in Germany of neolithic camps with interrupted ditches.[30] One is a plateau-camp near Mayen (plan, fig. 9) in the Eifel,[31] and consists of an oval enclosure surrounded by a single ditch broken by at least eleven entrances, and covering about fifteen acres of ground. Parallel with this ditch and about 80 feet behind it is a small palisade-trench, two to four feet wide, containing post-holes about two feet apart. Three of the entrance-causeways were carefully excavated by Lehner, and in each case evidence was found that they had been fortified with barricades of prone or perpendicular beams, probably forming wooden gate-towers. The finds, which are considered as pointing to the Untergrombach culture of the neolithic period, include various round-bottomed vessels, plain or ornamented with bands of thumb-marks. There is also a type of plain, round-bottomed vessel called a ' tulip-beaker ', because it is shaped something like the calyx of a flower. Indeed, but for the round bottom, the shape is so suggestive of the later ' beaker ' that it is difficult to resist the view that the latter

[29] Chauvet, *Bull. Soc. Arch. Charente*, 1884, p. xxvi. Some of them, including the sherds described and that from Availles, are exhibited in the St. Germain Museum.

[30] Hans Lehner, ' Der Festungsbau der jungeren Steinzeit', *Prähistorische Zeitschrift*, bd. II, heft I, 1–23.

[31] *Bonner Jahrbuch*, CXIX, 206ff.

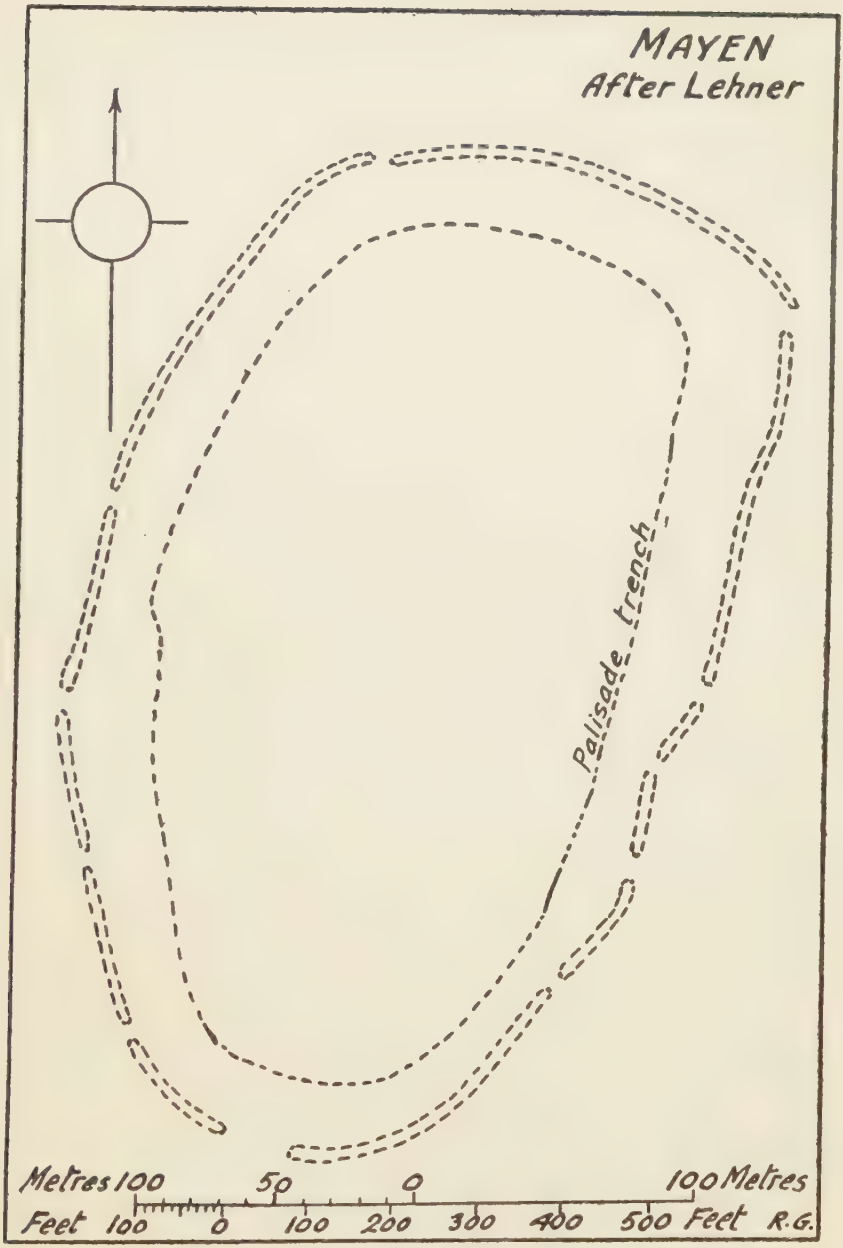


Fig. 9. CAMP NEAR MAYEN

may have been directly descended from the tulip-beaker, or at least have owed something of its origin thereto.

The second camp of this type is the great fortress at Urmitz[32] (plan, fig. 10), situated on a level plain on the bank of the Rhine a short distance north of Coblenz. It consists of two lines of interrupted ditches, 36 feet apart, describing a great semicircle, some 1400 yards across, the Rhine itself defending the remaining side. Behind the inner ditch is a palisade-trench, two feet wide and six feet deep, and this is pierced by regular entrances opposite each of the causeways crossing the *outer* ditch ; these are less numerous than those crossing the inner ditch. Lehner thinks the vallum must have stood on the space between the two ditches, and that the supernumerary causeways across the inner ditch served to enable the defenders to man this vallum. He also calculates that there must have been about 22 actual entrances to the fort, viz., one every 100 metres of the circumference, these entrances being marked, not only by causeways across both ditches, but by a corresponding gateway through the palisade-trench. The entrances that have been excavated have also shown the same evidence of the former existence of wooden gate-towers as we have seen at Mayen.

The objects discovered on excavation here indicate the same Untergrombach culture as at Mayen, but extending into the beaker period, viz., round-bottomed vessels with or without rows of finger-tip impressions on raised bands, horizontally perforated lugs, and round-bottomed ' tulip-beakers ' even more beaker-like in shape than those at Mayen. Actual beakers also occurred, together with an archer's wrist-guard. Polished axes, perforated axe-hammers, finely worked flint saws and a small whetstone are among the principal objects of stone.

Two other German neolithic forts are described by Lehner,[33] but neither of these has interrupted ditches. This fact is instructive for it warns us to be on the look-out for the possibility of finding a similar type in our own country. One of these is on the Michelsberg near Untergrombach—a site which has given its name to the culture of Mayen and Urmitz—and the other is on the Hezzenberg near Heilbronn, and appears to belong to the same period. At this last site the dwellings proved to be outside the ramparts, and this recalls the case of the undated camp on White Tor near Petertavy, Dartmoor—a double ring of ruined

[32] *Ibid.* cv, 164–72 ; cx, 122ff.

[33] Lehner, *Präh. Zeitschrift*, loc. cit.

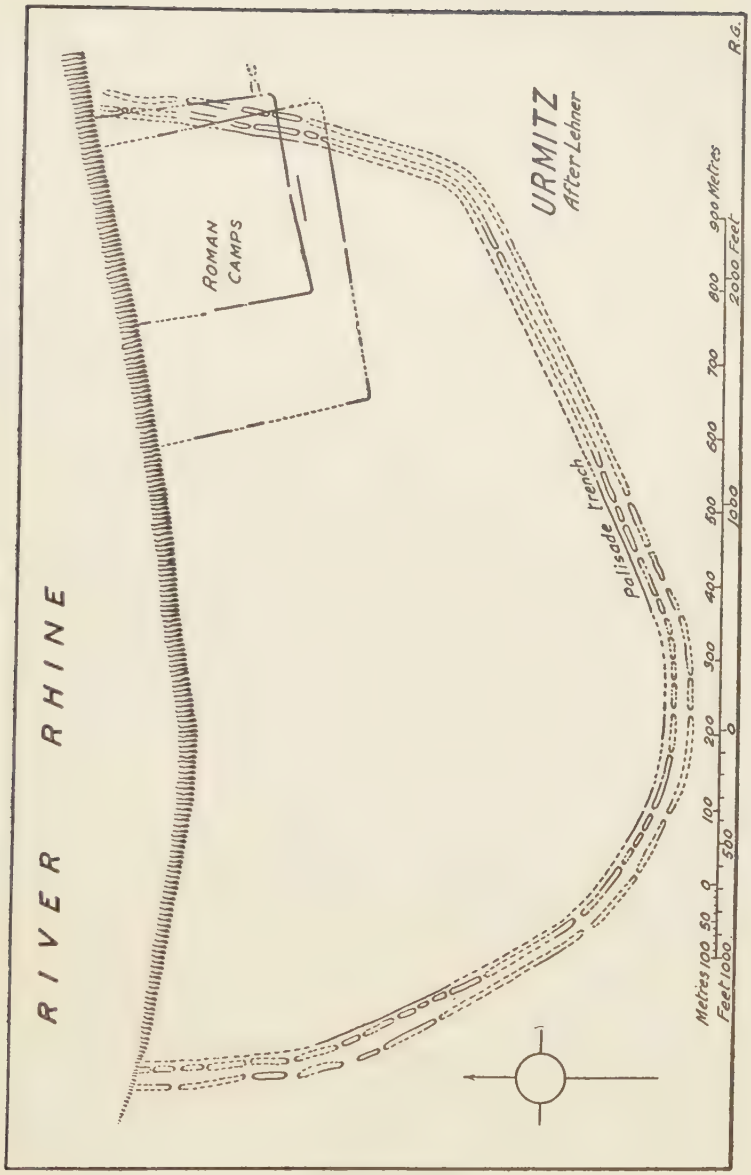


FIG. 10. CAMP AT URMITZ

walls with a group of hut-circles outside. As most of the remains on Dartmoor appear to be either neolithic or Early Bronze Age in culture, and as hill-forts, so far as we know, were only erected in the neolithic period and Early Iron Age, one should be prepared to include White Tor among the British neolithic forts. If this is so, the extramural settlements at Hezzenberg and White Tor may explain why traces of settlement are so rarely found in the *interior* of neolithic camps.

Lehner also describes another neolithic fort at Lengyel in Hungary, having a single line of defence, not interrupted, but deficient on the steepest part of the hill.

Characteristics of Neolithic Camps

From the descriptions given above it will be seen that British neolithic camps possess certain very definite and recognizable characteristics, not all of which are, however, exclusive to that period of construction.

The most obvious characteristic, and the most difficult to understand, is the tendency for the ditches to be interrupted by frequent causeways at short intervals. Possible reasons for this will be considered below.

Then there is the tendency to concentric lines of defence, separated by spaces of the natural ground level. This is not exclusively a neolithic feature, but it is very suggestive, and if in addition one of the outer rings is fragmentary in character, a presumption in favour of a neolithic date is strengthened.

In some cases the defences are deficient altogether where the hill falls away very steeply. It remains to be seen whether this will prove to be exclusively a neolithic feature, but as things are it is highly suggestive, especially when taken in conjunction with other characteristics.

The ground-plans of neolithic camps vary considerably, but if one is more common than another, it is the oval, more or less unrelated to the contour of the ground. Other varieties include a simple promontory (Abingdon), a semicircle (Scratchbury and Urmitz), and various outlying earthworks (Rybury) or radial ditches (Whitehawk). The number of parallel defences varies, too, from one (Knap Hill) to four (Whitehawk), and this seems to bear a general relation to the steepness of the hill, though not constantly so.

The situations of these camps are also varied ; the majority are on hills, but low-lying sites occur, as at Abingdon and Urmitz. Of the

hill-forts some may be situated on abrupt and prominent hills (Knap Hill and Rybury), and others on gentler eminences (Windmill Hill) or plateaux (Yarnbury). One very curious feature is that in some cases the builders seem to have chosen a saddle between two slight eminences (Whitehawk and Combe Hill)—a situation which to modern ideas would seem scarcely the best for defence.

The Purpose of the Causeways

The causeways across the ditches may be divided into two classes : (a) those which have no corresponding gaps in the accompanying ramparts ; and (b) those which do correspond with such gaps.

The former class obviously cannot have been gateways, and one can only suppose that the ditches were considered as quarries for material with which to build the ramparts, and that the various work-parties dug their own pits and were not particular as to whether they established communication with their neighbours in adjacent pits. Something of the same sort is seen in the case of the ditch round Stonehenge, the plan given in ANTIQUITY (1929), III, 80–1 making this very clear. That this habit of discontinuous digging persisted into the Bronze Age is evidenced by a round barrow of the Early Bronze Age in Cranborne Chase, possessing a ditch with the same features.[34] If this theory is correct, it may possibly point to the builders being more familiar with stone walls than with earthen ramparts, for stone-wall forts do not always have ditches, *e.g.*, the neolithic fort at Dimini in Thessaly.

On the other hand those causeways which lie opposite gaps in the accompanying rampart may well have been gateways. Lehner, who found evidence of actual gate-towers at Mayen and Urmitz, calculates that the former fort must have had about seventeen such gates, and the latter twenty-two. None of our British examples has yet yielded evidence of such gate-towers, but if numerous entrances were the vogue in Germany they may well have been so here also. Lehner[35] attempts to trace this type of fortification to the Aegean coasts, where he compares with it the neolithic stone forts of Dimini and Sesklo in Thessaly.[36] Dimini, the better preserved example, consists of roughly concentric

[34] Crawford and Keiller, *Wessex from the Air*, 12. cf. ANTIQUITY, 1927, I, plate opp. p. 426.

[35] *Präh. Zeitschrift*, loc. cit.

[36] Ch. Tsountas, Αἱ προϊστορικαὶ Ἀκροπόλεις Διμηνίου καὶ Σέσκλου (Athens Arch. Soc., 1908).

rings of stone walls pierced by several radial alleys which he considers to be analogous to the causeways of the earthen forts.

If, then, we admit the fact of numerous entrances in this type of camp, the question naturally arises as to why so many should be needed. In this connexion Lehner draws a very striking comparison between the fortress at Urmitz beside the Rhine, and the ramparts described by Homer as having been drawn by the Achaeans round their ships on the sea-shore. These latter are incidentally described in many passages in the seventh and twelfth books of the Iliad, from which we learn that the defences consisted of a rampart with external ditch and palisades, broken at intervals by several gateways which opened through timber towers. This might well be a description of the camp at Urmitz as reconstructed from archaeological evidence, in spite of the fact that the period usually assigned to the Trojan war is the beginning of the Iron Age in the Aegean. Yet surely such an exact description of a neolithic camp must have been an example of ' folk-memory '. From the description of the Trojan attack on this rampart one infers that the reason for so many gates was to enable the defenders to make sallies at any point on the line, and this view is confirmed by the remarkable description of Egyptian Thebes as having ' a hundred gates from each of which rush out two hundred men with horses and chariots '.[37] This may be taken as the poet's exaggerated conception of what constituted a strong city in prehistoric Europe, rather than as an actual description of Thebes, but it seems to betray the idea that may have been in the mind of the builders of our British neolithic camps, when, as at the Trundle and Combe Hill, they left so many entrances through the ramparts.

The problem, however, is not quite a simple one, and cannot be said to be finally settled.

Neolithic Pottery

A study of the various types of neolithic pottery that have been found in Europe and the Mediterranean region would be far too large a subject to be included in this paper, nor would the writer be competent for such a task. Such a study would, however, be necessary for the proper understanding of the different types of pottery which have been found in British neolithic camps. Nevertheless a few tentative remarks may not be out of place.

[37] Iliad, IX, 381–4.

While throughout Europe and the Mediterranean region every district seems to have its own peculiarities in regard to neolithic wares, it is a very striking thing that there are two features which are almost, if not quite, universal, viz., the round bottom and the vertically perforated lug. The former is found in the Badarian pottery of Egypt and is by far the commonest form in all neolithic pottery. Flat bottoms do occur even in the Badarian vessels, but they are always in the minority, and this seems strange, seeing that it must be much more difficult to make a round-bottomed pot, as a lump of clay naturally acquires a flat base when being moulded on a flat surface. Besides this, the round bottom seems to our way of thinking to be the more awkward shape, so that there must have been some very good reason for its general adoption among the peoples of neolithic culture.

The vertically perforated lug was not by any means the only type of handle known to neolithic pottery, but it is peculiar to that period and has been found widely distributed from the earliest cities at Troy right across Europe to Britain. In some favoured sites, as at Troy and in the Swiss lakes, fragments of cord have been found inserted through the perforations, thus revealing that their purpose was to enable the vessel to be suspended. This, together with the fact that horizontally perforated lugs are frequently found, suggests the most probable reason for the round bottoms, viz., that it was the common habit to suspend the vessels instead of standing them on the ground.

It is obvious that, while there is a general resemblance between the neolithic vessels from various sites in Britain, there are also differences, as, for instance, the prevalence of carinations in one site and their absence in another. Are these differences due to local fashions, or do they represent different foreign influences, or are they an index of a sequence of chronological development ?

Mr Thurlow Leeds[38] has discussed the primary distinction between the highly decorated Peterborough (Mortlake or West Kennet) type of bowl on the one hand, and the Windmill Hill (plate VIII, fig. 2) and Abingdon (plate IX) types on the other hand, and has pointed out reasons for believing that the latter had cultural connexions with the Atlantic seaboard from Portugal to Scotland, while the Peterborough class seems to be related to Baltic types. Mr Keiller's stratification at Windmill Hill further shows that the Atlantic variety is earlier than the Baltic, and that the two kinds are separated by a sterile layer of soil in his sections.

[38] *Antiq. Journ.* VII, 456–62.

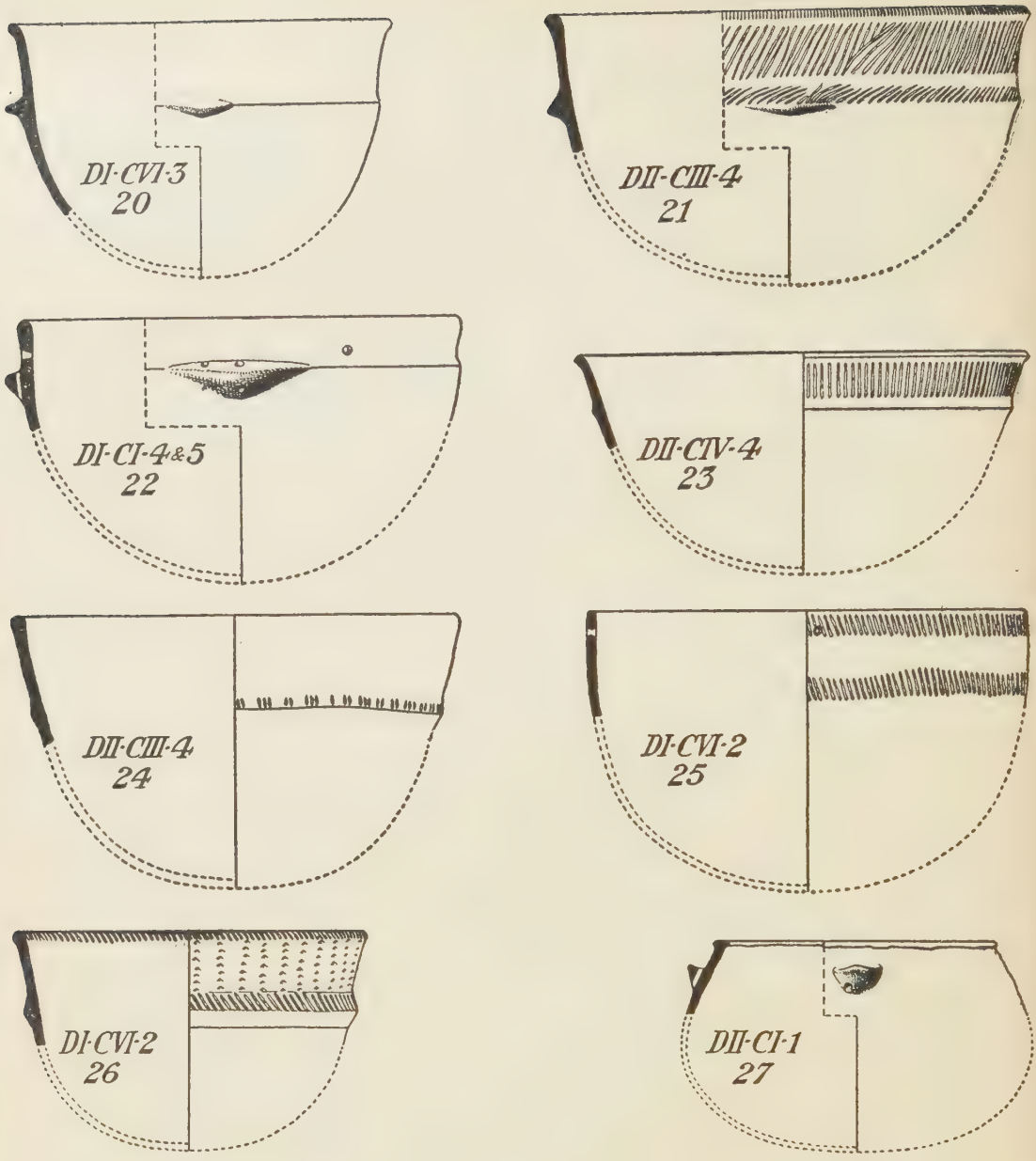


Fig. 11. NEOLITHIC POTTERY FROM WHITEHAWK CAMP. (Conjectural restorations)

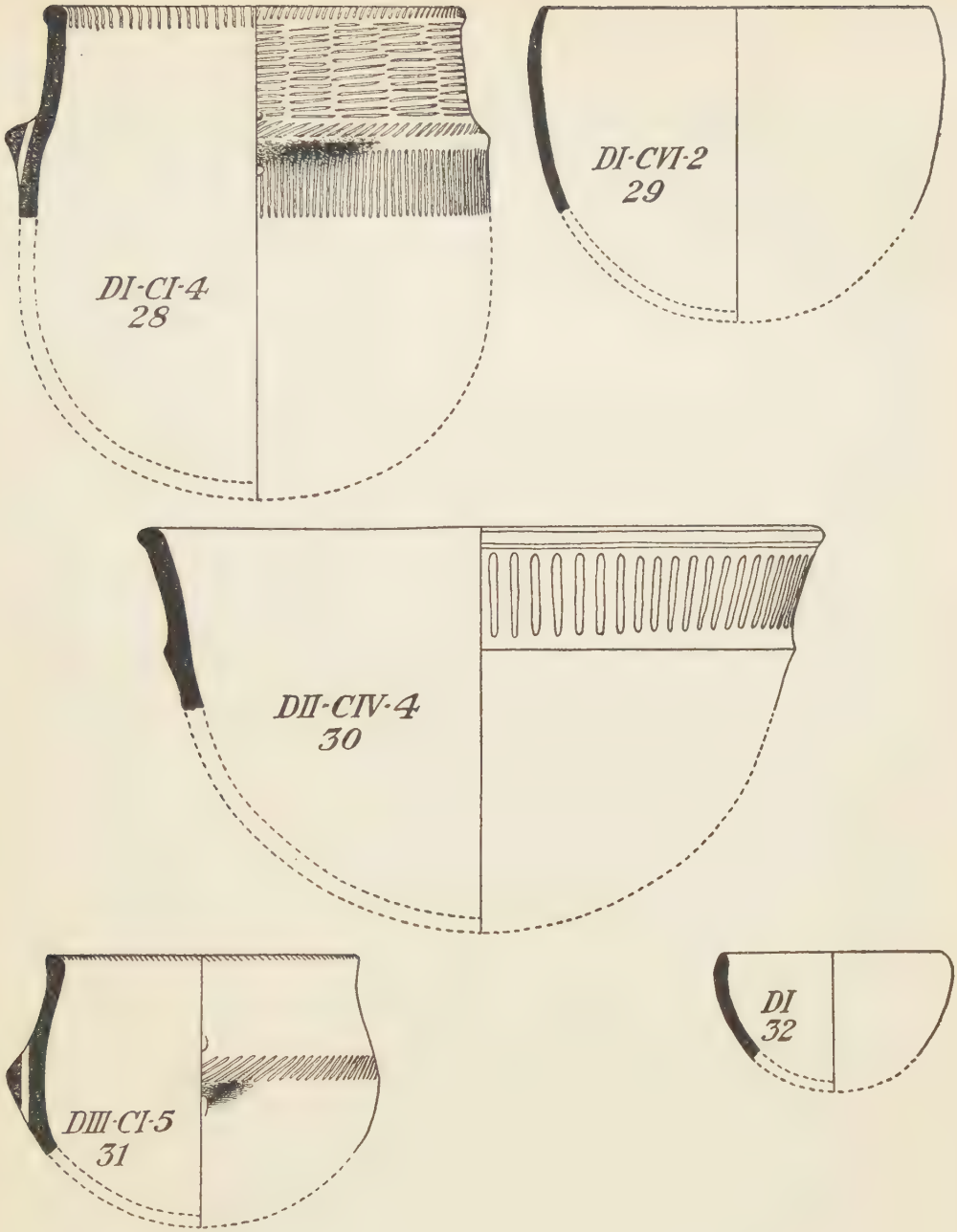


FIG. 12. NEOLITHIC POTTERY FROM WHITEHAWK CAMP. (Conjectural restorations)

Going still further, one may say that a study of the pottery vessels from Windmill Hill, Abingdon and Whitehawk (fig. 11) impresses one with the feeling that with their makers the ceramic art was by no means in its infancy. Sometimes the technique is equivalent to the best the Early Iron Age has produced, but, though in many cases the vessels are crude and primitive, the variety of shapes and styles of decoration presupposes a considerable previous history, and one has the impression that one is dealing with a degenerate rather than an evolving art, and with products resulting from the fusion in Britain of a number of foreign influences. As has been hinted above, Mr Leeds believes that the main connexions are with the dolmens of Portugal and Brittany, but this will not explain why, in spite of many similarities, the vessels from these three British sites (not to mention other minor finds) have their own distinctive characters, while the Scottish pottery also differs in detail from the English, while preserving a general family resemblance.[39] The similarity is, perhaps, closest between the Scottish and the Whitehawk pottery, a fragmentary vessel from Easterton of Roseisle[40] being almost identical with another represented by a single shard from Whitehawk (fig. 11, no. 30), and both seem to have their closest analogues in the pottery of the ' habitation-site culture ' of Sweden and Norway, in regard both to shape and to ornamentation.[41] The comparison is corroborated by the discovery at Whitehawk of a rough crescentic flint knife of Scandinavian type.

It seems likely, therefore, that in the so-called Windmill Hill class of pottery—the term is here used in Mr Leeds' sense, including all pre-Peterborough types—we must distinguish at least two sources of influence : one from Portugal and Brittany, and one from Sweden and Norway, while the Peterborough class itself seems to be most closely related to the megalithic pottery of Denmark.

These conclusions must be only tentative, and must be tested by a great deal more excavation as opportunity arises. It is to be hoped that by drawing attention here to the surface characteristics of neolithic camps many more examples will be recognized and recorded.

I cannot close without expressing my indebtedness to Mr Crawford and Mr Keiller for much assistance, and especially for Mr Keiller's generous insistence on my including details of his work at Windmill Hill even though his own report has not yet appeared in print.

[39] J. Graham Callander, ' Scottish Neolithic Pottery ', *Proc. Soc. Antiq. Scotland*, LXIII, 29–98.

[40] *Ibid.* fig. 37 (p. 56).

[41] See Ebert's *Reallexikon der Vorgeschichte*, IX, plates 18–22, 27, 28, 40–1, 52.

PLATE I

HARD STONE USED AS A GRINDER IN THE GARDEN BEDS
Ph. Norah S. Clogstoun

facing p. 55

The Prehistoric Remains of the Maltese Islands

by Sir T. Zammit

SO little has been published about the prehistoric remains of Malta and Gozo that archaeologically the islands are hardly known. Visitors are numerous, but attention is usually concentrated upon Hajar Kim or some other megalithic building to the exclusion of other interesting remains. Thus a meagre impression is usually obtained of the profusion of neolithic relics which still exist. Even standard works on archaeology, treating of the early periods of the Mediterranean civilization, give only a small space, if any, to Maltese monuments.

As late as the year 1925 a leading authority[1] on early European culture thus referred to Malta. 'It would take a whole book to give even the most cursory summary of the Maltese material. And then no progress would have been made. No significant parallels are at present known to the temples, the carving, the statuettes, or the pottery . . . It is still quite impossible to say whether Malta played the rôle of master or disciple among her neighbours and fruitless speculations on this topic had best be omitted'.

As a matter of fact neolithic monuments are very numerous, and it is regrettable that no comprehensive description of the Maltese antiquities has been compiled to help students to form a correct view of their importance in the development of an early culture at the dawn of Mediterranean civilization.

Failing such a book, I hope that an informal list of the megalithic remains in these islands will prove of interest to students.

Malta is the largest island of a group in the Mediterranean sea, the others being Gozo, Comino, Cominotto and Filfola. The group lies about 60 miles to the south of Sicily and 180 miles to the north of Africa.

Malta is about 17 miles along and 9 miles broad, with its long axis running southeast and northwest. Gozo, to the northwest of Malta, is

[1] V. Gordon Childe, *The dawn of European civilization*, p. 101.

MALTA
Scale of Miles
1 0 1 2 3 4
Cave Dolmen Menhir
N
Ahrax
Marfa
Mellieha Bay
Selmunett I.
Mellieha
St. Paul's Bay
Bujibba
Salina Bay
Tal Qadi
Ghain Tuffieha
Jnejna
Sebbieh
Mjar
Gargua
St. Julian's B.
Naxaro
Sliema
Fomm Irrieh
Musta
Lia
Birchircara
VALLETTA
Bahria
Balzan
Attard
Vittoriosa
Notabile
Hamrun
Cottonera
Mtahleb
Rabato
Curmi
Zabbar
Paula
Zebbug
Tarxien Temples
Marsa Scala
Luca
Dingli
Sijjewi
Debdieba
Zeitun
Axiak
Micabiba
Gudia
Kircop
Ghar Dalam
Crendi
Ghar Lapsi
Safi
Miska Tanks
Zurrico
Mnaidra
Bir-
Zebbugia
Halfar
Marsa Scirocco
Delimara
Filfla
1 Bur Mghez
2 Menhir at Ta Ghammar
3 Menhir at Hal Kirkop
4 Cordin West
5 Cordin East
6 Cordin South
7 Hypogeum - Hal Saflieni
8 Hajar Kim
9 Borg Innaddur

about 9 miles long and $4\frac{1}{2}$ miles broad, with an area of about 26 square miles.

The highest hill in Malta is only 826 ft. above sea level. Both islands end, at their southwestern coasts, in abrupt cliffs which at some points rise sheer from the sea to a height of about 400 ft. The high table-land slopes gently to the northeast, where the coast is low and indented with bays, creeks and harbours. The action of rain water has denuded most of the upper strata, forming valleys, ravines, basins and caves.

Geologically, the rocks are sedimentary without any sign of volcanic material. They belong to the Tertiary epoch. It has been suggested that there was an Eurafrican land-bridge between Sicily and Africa of which the Maltese islands is all that remains. Then the surface of the islands must have been about 4,300 ft. above sea level.[2]

The large land-locked harbour of Marsa Scirocco, to the south of Malta, represents, in all probability, what was once a fresh water lake. This would explain the presence in this island of elephants and hippopotami requiring for their existence an expanse of fresh water and an abundant vegetation.

Mr Sinclair considers that the land-bridge was not destroyed by a cataclysm, but by a slow subsidence at the rate of about 1 foot in a 100 years, a rate rendered probable by the depth of the sea around Malta and the time that separated our era from the last ice-age.

The pleistocene mammalia that roved over the bridge following the vagaries of the ice barrier, had a short life when the bridge disappeared, and their bones found their way into caves and fissures where they appear now as masses of fossil deposits. M. Vaufrey[3] denies the Eurafrican bridge, but believes in an extension of the Sicilian land across the Maltese channel. Caves and deposits are numerous in the Maltese islands and the result of excavations, conducted at different times, are now exhibited in the Valletta museum.

Caves

Ghar Dalam. The most important cave that appears to link these islands with the ice-age of southern Europe is known as Ghar

---

[2] G. G. Sinclair, 'Ghar Dalam and the Eurafrican bridge'. *Jour. R. Anthrop. Inst.* 1924, p. 261.

[3] Ramon Vaufrey, 'Les éléphants nains des îles Méditerranéens et la question des isthmes pléistocenes'. *Archives de l'Institut de Paléontologie humaine*, mémoire 6.

Dalam (the cave of darkness). It is undoubtedly a relic of the bygone ages, containing the fossilized remains of numerous extinct animals, and it has served as the dwelling place of human families from palaeolithic to late Punic days.

The cave opens in a ravine close to the shore of St. George's bay at Birzebbugia to the south of the island, about 6 miles from Valletta. The entrance is halfway from the bottom of the ravine and is protected by an iron gate in charge of a caretaker. The cave is wide and high, huge stalactites hang from the ceiling, and broken stalagmites cover most of the floor. For a length of over 300 ft. a marly deposit, over 23 ft. deep, contains fossil animal bones, pebbles, and boulders of various sizes.

For about 3 ft. above the rock-bottom a layer of plastic clay free from animal remains is found ; then follows a layer of bone breccia about 3 ft. thick, containing fossil animal bones in utter disorder. Most of the remains are of elephants and hippopotami rolled up by water into pebble form. Over the breccia, rounded pebbles and small boulders, worn smooth, extend for a depth of about 1 ft. Some 7 ft. of red earth containing animal bones cover the boulder layer, and on the top of this earth and stones are deposited until the cave-floor is reached. Here we find traces of human activity, the cave having been inhabited in the Neolithic and Bronze Ages, and even in quite recent times.

A startling discovery was reported in 1917 by Mr Gius. Despott, M.B.E., now curator of the natural history section of the Valletta museum. Whilst excavating in the cave he came across eight human teeth, of which two were declared by Sir Arthur Keith to be characteristic of Neanderthal man.[4] No traces of palaeolithic implements were found in the cave. The flint objects found might be assigned as reasonably to the Neolithic period as to the culture of the late cave period. This discovery renders the cave doubly important, for it brings the presence of palaeolithic man in Malta within the range of probability.

Bur Meghez. Another cave with features quite different from that of Ghar Dalam was discovered in 1911 by the late Prof. N. Tagliaferro in a quarry known as Tan-Naxxari, close to the village of Mkabba, to the northeast of which a narrow lane (on the right of the road leading to the Hal-Farrug road) leads to the quarry, on the left being the cave.

---

[4] 'Neanderthal man in Malta'. *Jour. R. Anthrop. Inst.* (1924) LIV.

Originally, this was a fissure in the globigerina limestone, 62 ft. long, with an average width of 6 ft., with a direction east by north.

Beyond the wide artificial mouth, the light filters into the cave through natural narrow vertical shafts obviously enlarged by human tools. When cleared of the dark red earth that filled it, the cave was found to contain the remains of at least 39 human bodies lying about the walls, and surrounded and in part covered with stones arranged at the time of burial for their protection.

Close to the human bones, crushed and partly disintegrated by the damp earth, potsherds of the early neolithic type were found, together with small polished stone axes or celts, shell beads, and double-holed buttons of various sizes. Bones of domestic animals were also met with, and in the red soil, both within and outside the cave, bones of deer or antelope were obtained in abundance. This would explain the name of Bur Meghez given to the site ; *Bur* meaning an open space, and *meghez* meaning goats, or really ruminants.

The few remains from this cave are exhibited in the Valletta museum. The cave is Government property and may be visited by applying to the owner of the quarry.

Menhirs and Dolmens

That the early inhabitants of these islands passed through all the stages of Stone Age culture can be gathered from the numerous free megaliths still to be seen, singly or in groups, as menhirs, dolmens and other simple structures. The temples and the other complicated buildings are surely the result of a refinement of primitive culture developed after centuries of trial and adaptation.

What remains of our megalithic monuments must be only a fraction of what once stood in Malta and in Gozo, for on our rocky lands the farmers, in their need of arable soil, are great enemies of stones, which they regard merely as obstacles to the plough.

Several of the megalithic structures mentioned in local literature have now completely disappeared ; and everywhere one may meet farmers who openly boast of having helped their father or their friends to clear a bit of ground from enormous blocks of stones that encumbered their property.

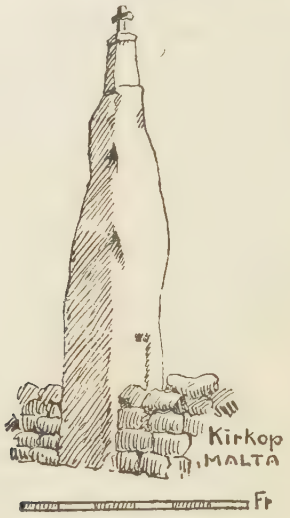
The best examples of menhirs left standing are the following :

Hal Far.[5] In Malta, to the southeast of the Hal Far aerodrome

[5] See Annual Report of the Curator of the Valletta museum, 1914.

at the back of the chapel known as Sant Anglu, a slab of hard coralline limestone with untrimmed surfaces stands in a shallow field. It is $5\frac{1}{2}$ ft. wide at the base, and has an average thickness of 2 ft.; its height is $9\frac{1}{2}$ ft. above the surface of the soil, which is about 2 ft. deep at this point. The stone tapers slightly towards the top, on which in later days a cross has been fixed.

Ta Ghammàr. To the north of the Hal Far menhir, at a distance of a few hundred yards, another standing slab is to be seen forming part of a rubble wall between two fields. It is close to the new R.A.F. quarters at Hal Far and is a prominent object on the low hill known as Ta Ghammàr. It is a roughly hewn slab 4 ft. 4 in. wide, about $1\frac{1}{2}$ ft. thick, and 7 ft. high above the surface of the soil.



Hal Kirkop. A more interesting menhir stands prominently on the left of the road, at the entrance of Kirkop village from the Valletta side. It is a roughly squared block of globigerina limestone forming part of the retaining wall of a field. Originally it was shaped as a parallelepiped 3 ft. wide, $1\frac{1}{2}$ ft. thick, and $10\frac{1}{2}$ ft. high; but in comparatively recent times its top was chipped to fix a stone cross.

Sebbieh. In the Sebbieh district, on the way to Ghain Tuffieha, in a field called Li-Skorba, a roughly conical stone about 12 ft. above the surface of the field shows over a mound of debris spread on the remains of a megalithic building. The stone is about $4\frac{1}{2}$ ft. wide, and

2 ft. 4 in. thick. Excavation may prove that this is not a free stone but part of a building of which only a few stones appear above the ground. The abundance of Stone Age potsherds in the vicinity makes it probable that the latter suggestion is more probable.

Qala–Gozo. Only one menhir is left standing at Gozo. It is a fine stone of a hard coralline rock called Hajra il wieqfa (the standing stone), pyramidal in shape, with rough surfaces, 10 ft. 9 in. high, 7 ft. wide at the base, and of a thickness throughout varying from $2\frac{1}{2}$ ft. to 3 ft. 3 in. This menhir is easily reached from Mjar, the main landing place at Gozo, before the village of Qala is approached.

Dolmens

No pottery, implements or similar objects have ever been found near the menhirs or the dolmens in these islands. Being usually raised on the bare rock everything around them must have been cleared away centuries ago.

Musta. At least three complete dolmens stood once in a rocky space known as Ixxaghra ta fuq Wied Filep, to the northeast of Musta, adjoining the public road leading towards the Naxxar gap to the south of Musta fort. One of these dolmens is still standing; it is a fine structure of hard coralline limestone, quarried probably on the spot. The horizontal slab measures 12 ft. in length, 5 ft. in breadth, and 2 ft. in thickness, and is supported by an upright slab at each end about 5 ft. from the ground.

Sijjewi. To the southwest of Sijjewi on the main road leading to Krendi, one can see in a field on the right side of the road the remains of a fine dolmen, now tampered with in the sense that the supporting uprights were lined with smaller stones and thickly plastered in order to make a shelter for field labourers. The coping-stone has not been moved. It is a slab of globigerina limestone 13 ft. long, 11 ft. wide, and about $2\frac{1}{2}$ ft. thick, supported laterally 4 ft. above the ground. A small cabin with rubble walls has now been built upon it from which the farmer may watch his crops. The dolmen, known as il-hajra msaqqfa (the roofed stone), is in a field called Ta misrah siniura.

Hal Far. In the Hal Far district, to the south of the menhir close to Wied Znuber ravine, there is a low dolmen in a good state of preservation practically lost among stones and wild plants. The table-slab, of a roughly hewn limestone, is 12 ft. long, 6 ft. wide, and about 2 ft. thick. The free surface is weather worn, but grooves, cup-like pits

and a shallow quadrangular depression are clearly to be discerned upon it. The two supporting slabs are small so that the horizontal slab is not more than $2\frac{1}{2}$ ft. above the ground. It appears that the slab was quarried in place and then simply raised and supported at each end.

BIDNI-ZABBAR DISTRICT. A well constructed dolmen is still to be seen in the lands called Tal Bidni, to the southeast of Zabbar village, in a wild rocky space known as Ix-xaghra. The top slab is of globigerina limestone, 9 ft. long, 6 ft. wide, with an average thickness of 9 in. It is about 3 ft. off the ground. The coping-stone is pierced in the centre by a round hole 3 in. in diameter. This hole has weakened the stone,

RUINS AT DEBDIEBA.

FIG. 1

which gave way along the middle line so that the two fragments are raised at the outer edges and depressed towards the centre.

GOZO. A huge slab of limestone, half raised from the ground, may be seen not far from Xaghra village at Gozo, in a field called Jnien mrîk, in the district Ta Ghain Xeiba. It is a roughly squared monolith propped up at one end by a smaller block, both made of coralline limestone quarried from the local rock. The recumbent stone is 20 ft. long with an average width of 16 ft. and a thickness varying between 4 and 2 ft. A portion of the stone is detached from the main body but so closely pressed against it that there can be no doubt that they both formed part of the same stone.

Minor Megalithic Remains

A number of megaliths partly arranged as walls and partly standing alone or massed together, can still be seen on the rocky plateau south-east of Zurrico, close to Wied Moqbel or Wied Ta Branda. Other megaliths, apparently detached from regular buildings, are still to be seen in the following localities: at Mtahleb to the extreme west of Malta, at Fomm ir-rieh between Bahria and Jneina bay (west coast); on the Jneina plateau near the tower known as Ta Lippìa; at Li Skorba, Sebbieh, on the way to Ghain Tuffieha; at Hal Jinwi to the south of Zeitun; at San Anard, not far from the fort of the same name, district of Zabbar; at Xropp il ghajin, on the east coast not far from the Tas-Silj fort; at Bahria, on the west coast in the fields overlooking il Blata tal melh, and in more than ten other sites such as Pellegrin, Pwales, Salina Bay, Hal Resqun, Tal Bakkari, It-Tumbata at Casal Luka, Id-Debdieba (fig. 1) near Mqabba, etc.

At Gozo, there are imposing megalithic remains on the plateau Ta chench, to the southwest of the island; Borg tal Mramma, in the district of Xaghra, the ruins of Santa Verna excavated in 1911; at Ghain Sielem, on the road leading to Victoria, the group known as Limreisbiet; southwest of Victoria the extensive ruins in the district of Ta maiziena, besides the remains at Cape San Dimitri, il Hodba ta Wied Harrieq, il Hodba tal Ghain, il Hodba ta Mliet, Tal Qaghan, etc., the most important being the group of magnificent temples at il Jigantia in the Xaghra district.

The Complete Megalithic Buildings

Besides noticing the minor neolithic remains of these islands it is well to give a cursory glance at the megalithic buildings methodically arranged for a definite purpose such as dwellings or sanctuaries. It is astonishing how numerous these buildings must have been in the Maltese islands. Some of them in the course of ages have partly or completely disappeared; but those that still remain are sure evidence of the activity of a race already formed into a large, organic and peaceful society.

The number of buildings is more bewildering than their magnificence. If the islands had only one or two complete megalithic structures one would feel that the neolithic population had raised a monument to the Power they believed in, or in honour of a hero or for the hero's use, but when these complete dwellings, towers or temples, whatever they

may be thought to be, are met with all over the island the explanation of their presence is certainly perplexing.

In this work of compilation, however, it is useless to go deeply into this interesting question, and the author feels that he must confine himself to a simple list of these extraordinary monuments.

CORRADINO
(EASTERN GROUP)

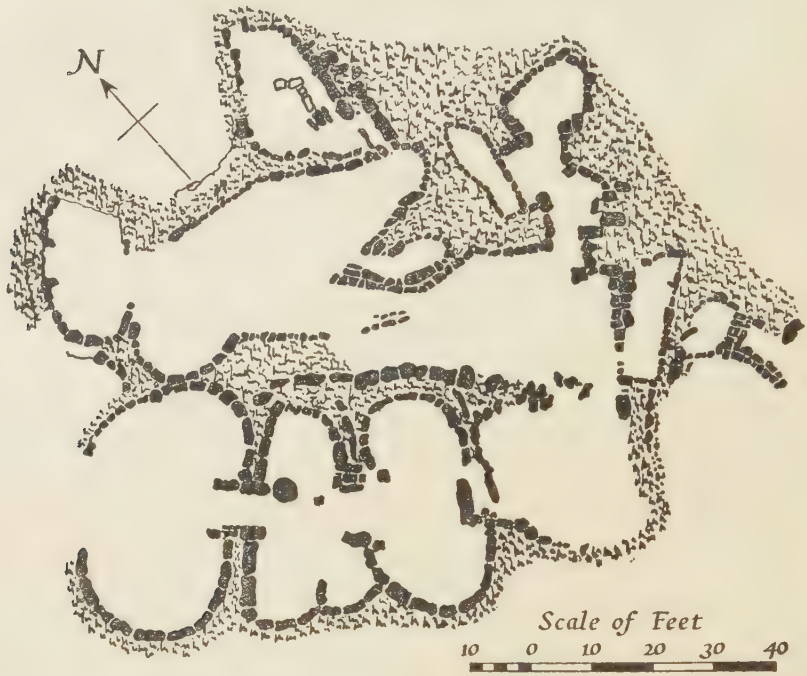


FIG. 2

Standing on the shores of the Grand Harbour the importance of this splendid haven is shown by the number of megalithic monuments surrounding it. We can only mention what remains on the southern shores, for those that were probably raised on the northern side were completely demolished when Valletta was built on the Mount Sceberras in 1568. The southern heights of the harbour are known as Il Kortin, a name which later was changed to Cordin or Corradino.

Five groups of megalithic ruins were described by Dr A. A. Caruana in the *Archaeological Journal* (1896); a sixth group was

discovered in 1919. Only two of the groups seen by Dr Caruana can now be traced near the oil tanks, to the west of the detention barracks.

Western Group (Cordin). The western group of the Cordin ruins occupies an area of about 50 square yards. What remains of the building is hardly sufficient to give the outline of the original plan. The megaliths are disposed so as to form circular enclosures with an entrance to the northwest. An elliptical room is still recognizable. This adjoins a wide space divided into three circular rooms, whilst to the northeast an elongated space is also enclosed by carefully placed megaliths. The rest is a mass of loose blocks, slabs and debris.

Eastern Group (Cordin). This group (fig. 2) is in better preservation than the first and is more extensive. A series of four elliptical enclosures to the southwest are connected by a central corridor. To the northeast, enclosures grouped in series appear to have existed together with a number of detached chambers. The main entrance is to the northwest. The walls are made mostly of roughly dressed slabs ; the floor consisted of large flagstones and in part of beaten earth (torba floor). Pillars, round stones, and numerous stone implements were found and numerous potsherds characteristic of the Maltese Stone Age.

Southern Group (Ixxaghra). This group (fig. 3) lies outside the naval boundary wall to the south of the public road leading up to the Cordin hill from Ras Hanzir. It was discovered and excavated by Dr Thomas Ashby, Professor Eric Peet and the writer in 1909.[6] It is enclosed by a wall and reached through an iron gate of which the key may be had from the caretaker of the Hal-Saflieni Hypogeum.

The ruins occupy a space of about 1400 square yards and consist of two main groups with a common circular forecourt about 50 ft. in diameter, roughly paved with flagstones and cobbles.

The two groups have a separate entrance looking south. The group on the left (west) is reached through a well constructed gateway made of large slabs on end. The corridor beyond the entrance is well paved and soon widens into a yard with a semicircular space on each side and a deep apsidal room in front. On the left side of the yard a hard-stone trough, 8 ft. 9 ins long and 4 ft. wide, is neatly divided into seven oval compartments caused evidently by constant rubbing. It appears that seven persons could lean or stand against the trough and grind corn. (Plate 1).

---

[6] 'Excavations in 1908–11 in Malta and Gozo'. *Papers of the British School at Rome*, vol. VI.

In a room to the south, three niches are built against the curved part of the wall.

The second group of ruins, on the eastern side, has a separate entrance from the common forecourt leading to a corridor on which two circular rooms open, one on each side, the one on the left being larger than the one opposite to it.

IXXAGHRA TA CORDIN.

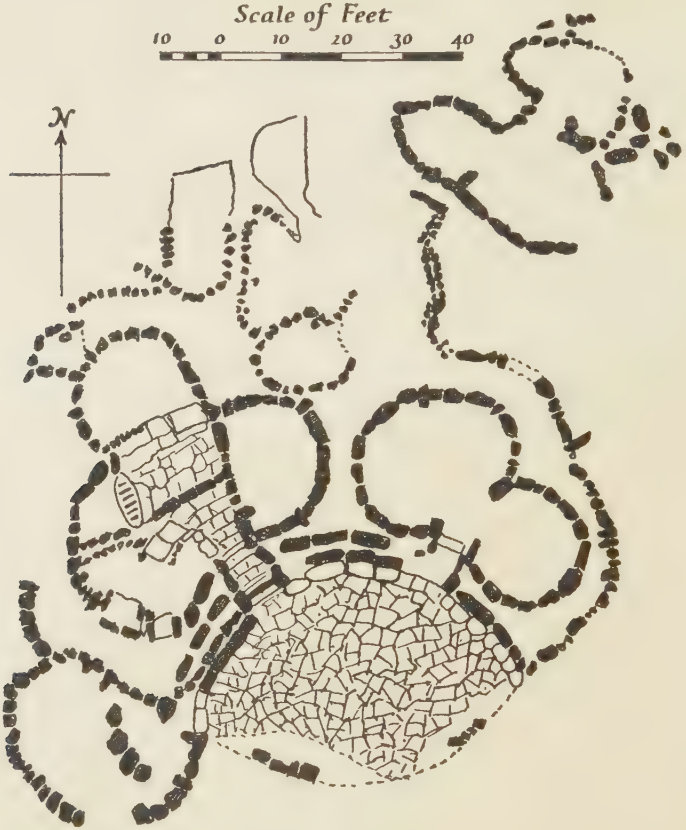


Fig. 3

Apparently a third gateway with an eastern aspect led to a set of rooms independent from the two groups, but of these buildings only the northwestern wall can be made out, the rest being dilapidated and quite beyond the hope of reconstruction. Cylindrical stone pillars, stone pounders and grinders, slingstones and numerous flint implements

were obtained from the ruins. A few shell and bone objects, and an enormous amount of potsherds of the finest neolithic type of Maltese ware, were found during the excavation of the site. The most important objects discovered are in the Valletta museum.

THE TARXIEN GROUPS. Not far from the Corradino ruins, another group of megalithic buildings can now be seen to the southeast before reaching Tarxien (Tarshien).

The monument was completely buried under field soil until 1914, and nothing on the surface pointed to its existence. The farmer who rented the fields near Tal-Erwieh cemetery volunteered the information that a certain depth below the surface his tools struck blocks of stone; this led the Curator of the museum to investigate the site, which was completely excavated in about six years.

This magnificent megalithic monument consists of three groups of buildings which the excavator believes to be temples, of three different periods, but all of them in the Stone Age, or at least before the diffusion of the Bronze Age culture. The temples are freely connected with each other, and at present they have a common approach from a large semicircular forecourt. (Fig. 4).

The first temple, supposed to have been the earliest of the three to the northeast, had a regular entrance flanked by upright blocks of stone across which a high step was laid. This led to a central corridor in a NW–SE direction along which two sets of semicircular apses are disposed. No decorations whatever are to be seen in this building but the northeast apse was connected with a room which was probably used as an oracular chamber.

The second temple (plate II) was originally reached from the south, where the third temple was later on constructed and which, probably, occupies the site of its forecourt. A passage, over 20 ft. long, leads to an elliptical space about 50 ft. long at right angles to it, ending in an oval apse at each end with a circular fireplace built in the middle in front of the passage. The southern wall of this elliptical enclosure is pierced by two gateways, one to the right and one to the left of the corridor, leading into two comparatively small rooms. On the walls of the room on the east side the figures of two bulls and a sow are cut in relief.

Beyond this elliptical space a high threshold is laid in front of a ten foot corridor flanked by two semicircular apses, in which two stone screens decorated with spirals in relief are still standing (plate III). Beyond this, another high threshold is found before one reaches a pair of circular apses of smaller dimensions. This second temple is built

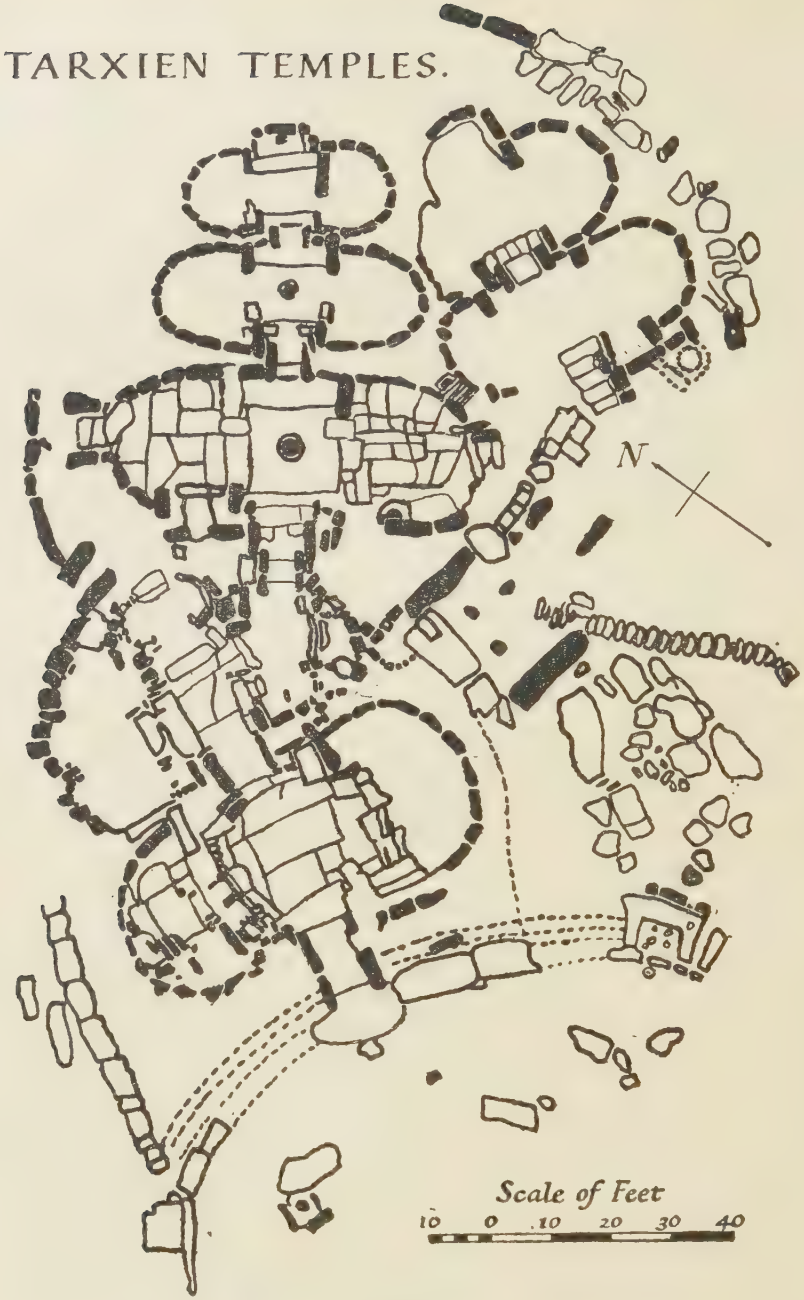


Fig. 4

with great care and some of its stones are decorated with spirals in relief. (Plate IV).

The third temple, reached from the forecourt to the south, has a huge convex slab for a threshold, beyond which is a short passage paved with a single block of stone. The passage leads to a square space flanked by an apsidal room on each side, in front of which are beautifully decorated blocks (plate V). The remains of a colossal stone idol stands on the side of the right apse. In the left apse are the remains of an ealborate chapel in which carved blocks and two friezes representing sacrificial animals are still to be seen (plate VI).

The main corridor extends further north to a semicircular shrine on a high platform, of which the front is decorated with a delightful pattern of spirals. An apse to the left of this platform is connected with an archaic shrine, and, to the right, the eastern apse, symmetrical to the one to the west, was modified to afford an entrance to the second temple.

During the excavation of this site it was found that the floor of these temples was covered with about 3 ft. of silt, a sandy dust that had spread over the site in the long length of time during which the monument was a heap of ruins. After this accumulation of soil a Bronze Age people made their appearance in Malta ; they disposed of their dead by incineration, and utilized the open space under which the Stone Age remains were buried for the deposition of their cinerary urns.

There is a large collection of stone, bone and copper implements, amulets, statuettes, clay vessels and potsherds in the Valletta museum which illustrates the Stone and Copper Age cultures of the people who at different times made use of the Tarxien buildings.

Hal Saflieni Hypogeum. Near the Tarxien megalithic ruins, to the southwest, is an underground series of caves, passages and cabins, with trilithons both carved out of the solid rock and built in front of them, which was discovered in 1902 at Paula and opened to the public about five years later. (Fig. 5).

The entrance to this interesting hypogeum was originally in the Hal Saflieni Street, in which remains of a gateway and other upright slabs were met with. As houses were built on the surface, the Government made an entrance in Catacombs street. A shaft, about 30 ft. deep, was sunk and the hypogeum cleared through it. The place is now provided with electric light, and a caretaker who lives close by is in charge of the monument.

The hypogeum has three distinct storeys. The highest is connected

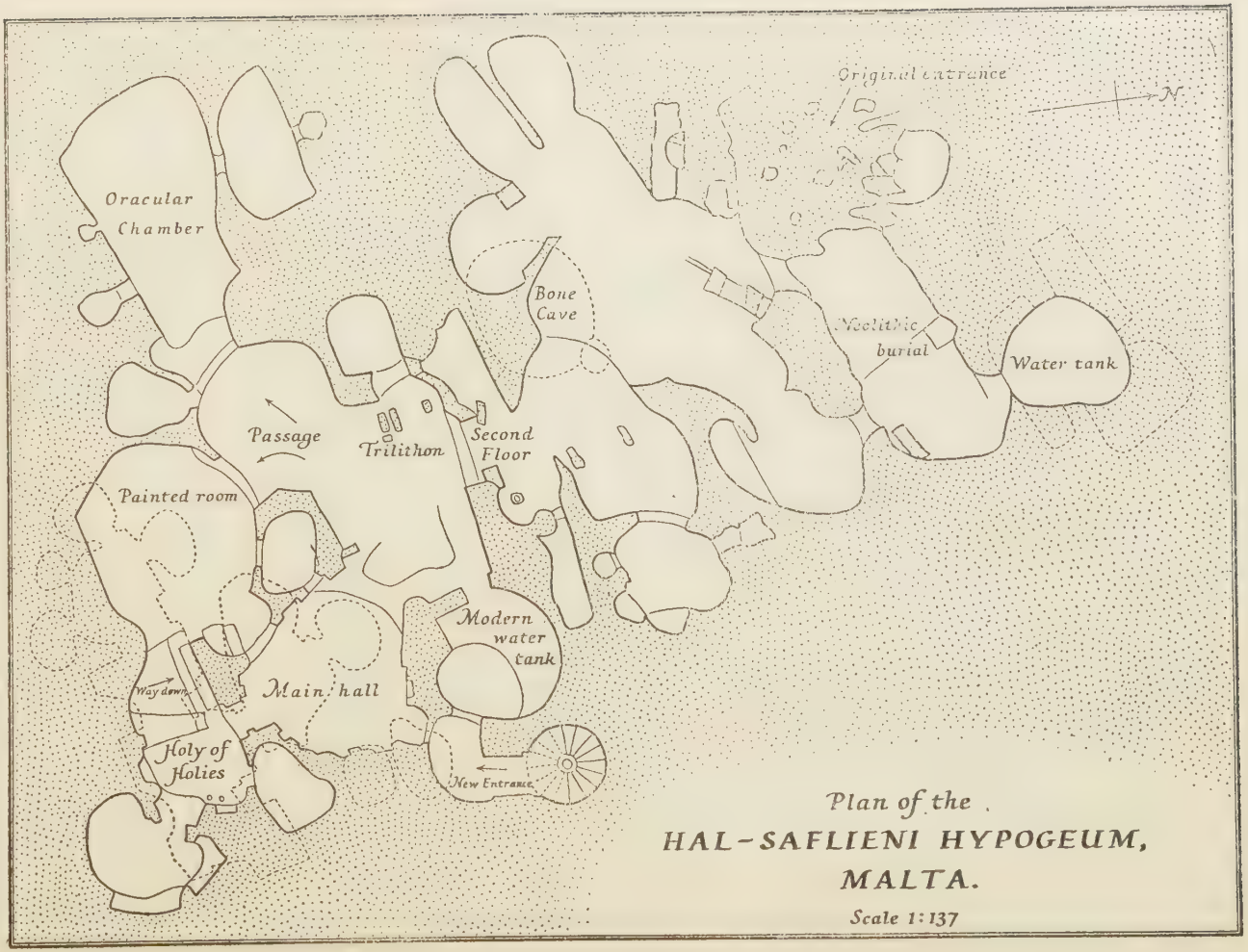

Original entrance
N
Oracular Chamber
Bone Cave
Neolithic burial
Water tank
Passage
Trilithon
Second Floor
Painted room
Modern water tank
Way down
Main hall
Holy of Holies
New Entrance
Plan of the
HAL-SAFLIENI HYPOGEUM,
MALTA.
Scale 1:137

Fig. 5

with the original entrance. The middle one, the largest of the three, contains a main room, a number of small chambers and two painted rooms, one of which was, in the writer's opinion, an oracular chamber. The lowest storey is reached by a flight of steps, in part built and in part cut in the rock. It appears that the site was used for different purposes in two distinct periods. When first dug out, it served the purpose of a sanctuary and for the consultation of an oracle. It is probable that it was also a place for initiation into the mysteries of priestcraft. In later days, at the end of the Stone Age, the place, with a reputation of great holiness, was used for burial purposes. The caves were filled up with red field soil, in which about *seven thousand* persons were buried. Neolithic pottery and numerous ornaments of shell and polished stone were found with the bones.

The cutting of this underground monument was a gigantic undertaking which must have taken ages to complete, and the people who planned it must have reached a high degree of culture and civilization.

Krendi Megalithic Ruins. West of Krendi village, about 7 miles from Valletta, there are two interesting groups of ruins not very far from each other :—Hajar Kim and Mnaidra with their water supply known as Il Miska.

Hajar Kim. The name means ' The Standing Stones ', for only the uprights standing out of a mound could be seen, before the year 1839, when the excavation of the site was undertaken by Mr Vance of the Royal Engineers. The monument is approached from a straight road on its eastern aspect. Once beyond the iron gate, the visitor reaches a semicircular forecourt paved with large irregular cobbles. The façade consists of six limestone slabs on end with rectangular blocks at their base. The main entrance in the middle of the façade has a southeastern prospect. (Plate vii).

To the right of the forecourt, a tumbling mass of stone blocks must have been dwelling places, store rooms, or pens for sacrificial animals, for the main building has all the features of a sanctuary. At the back of these disarranged blocks, there is a series of chambers, with an entrance to the north, evidently an annexe for the convenience of those who ministered the rites in the temple.

The main entrance in front of the forecourt leads to a long corridor originally flanked on each side by two sets of deep apses and ending in another entrance to the north. The first pair of apses is reduced in size by large slabs on end, pierced by square openings once fitted with doors or curtains. The central area between the apses is paved with flagstones

and surrounded with well squared blocks used as seats or as low altars, originally decorated with pitmarks (plate VIII).

Beyond the set of apses there is a second paved space, and an elaborately built apse on the right, with an enclosure made of comparatively thin slabs on end, badly eroded through exposure. In the eastern wall there is a large oval hole through a slab, opening on the outside into a closed chamber now in ruins, probably used as an oracular room. To the left of the central space there is a long court with two trilithons built in the left wall, and one in the right wall, close to the entrance to a set of rooms. These were once fully decorated with pitmarks ; at the entrance two curiously shaped altar tables stand on a rectangular foot. This long court appears to be a rearrangement of the western apse which was at sometime pulled down, and four elliptical enclosures, each with a separate entrance, one inside the long court and the others on the outside, were built.

Walking round the ruin, the visitor is struck by the size of the slabs and the pillars forming the outer wall. One of the pillars is 17 ft. high and the last slab to the southeast is 2 ft. thick, 9 ft. high and 23 ft. long.

A small group of ruins, about 30 yards to the north of the one just described, is in a bad state of preservation.

MNAIDRA. Leaving Hajar Kim by a path to the west, another megalithic building is reached at the bottom of the hill. It is a fine building overlooking the sea and the islet of Filfla, about 3 miles away. It differs from that at Hajar Kim, which is of a yellowish soft stone easily squared and rubbed smooth, whilst Mnaidra is mainly built of hard, rough, reddish coralline limestone most difficult to work. (Plate IX).

Mnaidra (fig. 6) consists of two separate buildings at a different level. The first has a southeastern aspect. The façade is made of the same stone as Hajar Kim ; it has two gateways, the one to the right, though broken, shows that it consisted of a huge slab pierced by a square opening ; the one on the left is dilapidated. Beyond the entrances is an elliptical area 54 ft. long and 24 ft. wide, enclosed by a carefully built wall of slabs on end surmounted by ashlar masonry, which, originally, were corbelled up to form a dome at each end. The floor is made of beaten earth and broken stones. Parallel to the first two apses is another set of semicircular apsidal chambers 45 ft. long from end to end, and 20 ft. broad at their widest part. The walls are made of well squared slabs set on end and capped by rectangular blocks of stone.

In a deep recess, at the back opposite the entrance, a stone slab 10 ft. long and 6 ft. wide stands like a huge table supported at each

TARXIEN—THE SECOND TEMPLE, WITH CIRCULAR FIREPLACE

Ph. Norah S. Clogstoun

facing p. 72

PARXIEN ONE OF TWO STONE SCREENS DECORATED WITH RAISED SPIRALS
Ph. Norah S. Clogstoun

TARXIEN—DECORATED BLOCKS WITH RAISED SPIRALS
Ph. Norah S. Clogstoun

PLATE IV

TARXIEN—DECORATED BLOCK IN FRONT OF APSIDAL ROOM

Ph. Norah S. Clogstoun

FAÇADE FRIEZE REPRESENTING SACRIFICIAL ANIMALS

Ph. Mr E. Gouder

HAJAR KÎM

By permission of the Air Council, Crown copyright reserved

PITMARKS ON SLAB OF GLOBIGERINA LIMESTONE AT HAJAR KÎM

Ph. Norah S. Clogstoun

MNAIDRA

By permission of the Air Council, Crown copyright reserved

PLATE IX

BUJIBBA—FRIEZE REPRESENTING A SET OF FISHES

Ph. Mr E. Gouder

OUTER WALL, JIGANTEA, GOZO
Ph. Sir T. Zammit

end by a pillar, about 5 ft. from the ground. The wall of the eastern apse is plain, that of the western apse is pierced by a window-like structure of highly finished stones, beyond which is a deep niche with an altar at the back.

The second building, at a lower level, has a fine entrance looking due east. The outer wall is made of masses of a rough reddish stone piled up to a considerable height. A semicircular forecourt is paved with cobbles, and large quadrangular blocks laid in front of the wall afford sitting accommodation. The gateway and the passage beyond

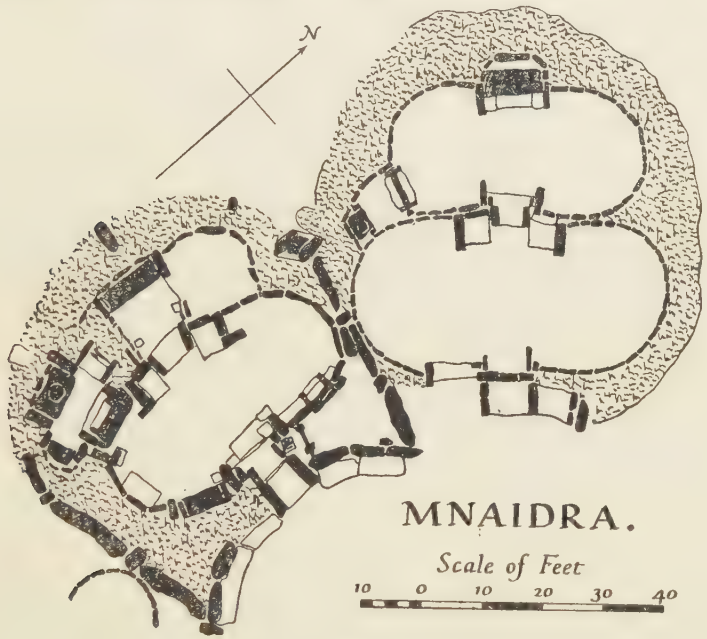


Fig. 6

are carefully paved. The first space reached is elliptical, 45 ft. long and 23 ft. wide. In front is a magnificent trilithon. On each side there are well squared and gracefully pitted footstones and vertical slabs.

The right apse, made of large slabs on end, shows numerous courses of masonry laid to form a dome.

A side chapel is reached through a square entrance cut in a slab ; it has a dainty niche on the right with an altar at the back. To the left, the chapel ends in a double shelved corner secreted under huge blocks of coralline limestone converging at a remarkably acute angle.

To the left of the main court is a most striking entrance to a space at the back. It consists of a huge trilithon under which a pitted slab, forming the lintel of another trilithon, reduces the entrance to a gateway. In a rectangular chamber at the back, two double-shelved niches are built up in two recesses.

A passage at the back is lined with large slabs on end kept apart by other slabs laid horizontally between them. To the extreme right of the passage an outer semicircular apse has a beaten earth floor and roughly built walls. Cartloads of the best neolithic pottery were found in and outside this ruin, when these temples were re-excavated in 1910. The first excavation in 1840 yielded very little material.

In the Valletta museum is exhibited a remarkable collection of objects from these two very interesting buildings.

Miska Water Tanks. To the northeast of Mnaidra the ground slopes up to a flat plateau of a compact rock in which six large water reservoirs were cut in neolithic days for the use of the temples below. The tanks are bell-shaped and vary in depth ; some of them are connected with each other but have separate mouths. They are now mostly full of stones thrown in by idle hands. The size of these reservoirs and the technique of their cutting and covering testify to their age.

The visitor may find the climb a stiff one, but the interesting features of the tanks and the view one gets of the wild country round repay the inconvenience of the rough going.

Ta Hajrat (Mjar) Ruins. A mound of earth through which blocks of stone emerged was excavated in 1925–27 on the site known as Ta Hajrat (of the stones), at the entrance of Mjar village in a field in front of the Government school. Strada San Pietro leads straight to it. Mjar is about 9½ miles to the west of Valletta.

The ruins consist of two groups of buildings, the one to the south being distinctly of the Stone Age, whilst the smaller group to the north is evidently the work of a later period. The earlier building, with the main axis in a SE–NW direction, consists of a slightly concave front about 50 ft. wide with a well constructed gateway in the middle. Two steps lead up to a corridor flanked by large hardstone uprights on which, originally, horizontal slabs were laid, to cover part of the entrance. The two hard stone slabs measure 9 and 8 ft., respectively, in length.

The corridor in front of the entrance, 16 ft. long, is paved with large stone blocks ; at the end is a paved rectangular space surrounded by large slabs on end. Laterally, on each side, a doorway leads to an elliptical chamber built of roughly squared blocks. The one on the

west shows a thick curved wall built to the south, which reduces the chamber very considerably ; the one to the east has its apsidal end intact but the northern wall is completely removed. In front of the rectangular space is a circular room 13 ft. in diameter ; its walls are made of roughly hewn blocks of stone.

In plan (fig. 7), this part of the building has the appearance of a three-lobed figure, like the ace of clubs on a playing card.

Later, evidently in the Copper or Bronze Age, the place was enlarged by building smaller enclosures to the northwest of the eastern

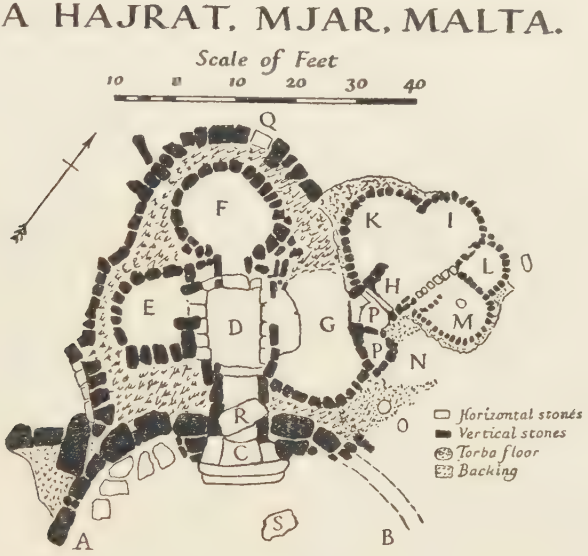


Fig. 7

apse. This later building is made of smaller stones but the trefoil arrangement was retained.

The objects collected from the excavation of this site confirm the evidence given by the architectural features. Pottery, flint implements, and other objects characteristic of the Stone Age, were obtained in considerable quantity, whilst from the northeastern ruin pottery and objects of the Bronze Age were mostly in evidence.

The vicinity of the ruins of Li-Skorba at the entrance of the Mjar village points to the importance of this site in neolithic times.

Tal Qadi Ruins. Very interesting megalithic remains were uncovered lately in the St. Paul's Bay district, at Tal Qadi, the name of

a tract of land on the road called Ta limdawwra which opens from the Naxxar road to the northwest leading towards Salina Bay.

The site is badly dilapidated, but two large semicircular apses with a paved passage between them can still be made out. More remarkable are four huge blocks of stone, now prostrate, which were once horizontally set up on smaller blocks forming a kind of *allée*

BORG IN NADUR, MALTA.

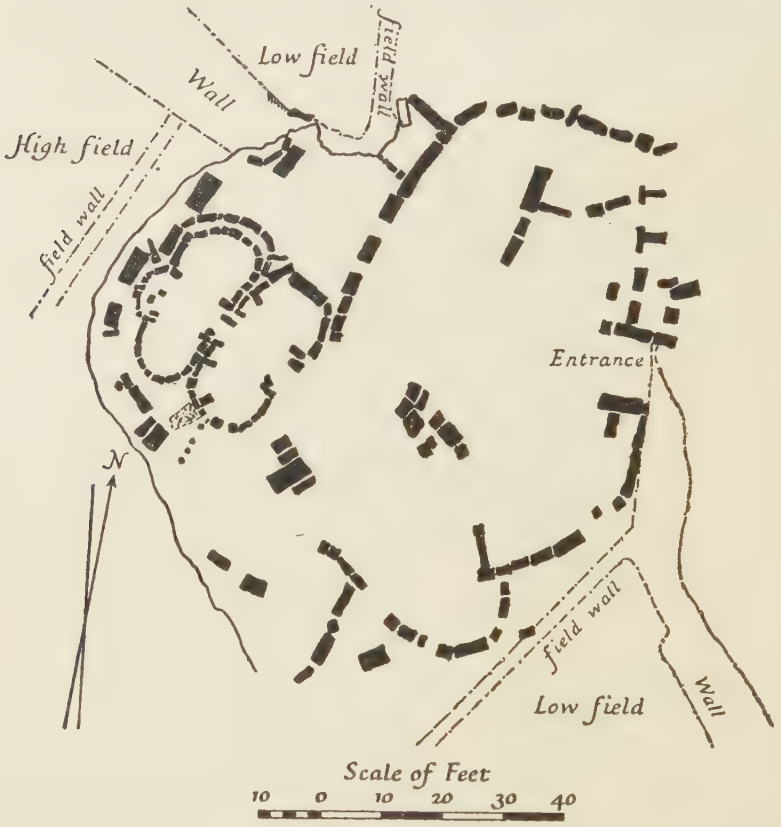


FIG. 8

couverte. The pottery and the flint implements met with are clearly of the Stone Age.

TA BUJIBBA. On the eastern shore of St. Paul's Bay known as Bujibba, on the road leading to Qawra point, the remains of a neolithic building were partly excavated in 1928. The attention of the excavators

was attracted by megaliths grouped in a field to the right of the road. The site was ruthlessly broken up by people who tried to make an arable field of the ruins. So far excavation has shown that remains of an elaborate building have escaped destruction and two elaborately carved stones were found. One of these shows groups of spirals in relief, and the other has a frieze cut on two sides of the stone representing a series of fishes (plate x). When the excavation is completed it is hoped that a plan of a portion of the original building may be made.

Borg in-Nadur. To the southeast of the island, overlooking the bay of St. George of Birzebbugia, an extensive megalithic building

(fig. 8) extends over the plateau to the right of the road leading to the bay. The ruin is reached from the narrow road to the right of the small chapel not far from the sea-shore.[7]

A megalithic wall about 180 ft. long extends in a SE–NW direction. The remains of three circular enclosures have been uncovered. Beyond the main entrance, in the shape of a huge trilithon, is a wide elliptical area about 50 ft. long and 40 ft. wide. A smaller area at right angles to the first one ends in an oblong forecourt and two parallel elliptical chambers. The corridor in the middle ends in a curved recess.

[7] See *Man*, XVI, no. 1, 1916; A. Mayr, *The prehistoric remains of Malta*, 1908; M. A. Murray, *Excavations in Malta*, London, 1923 and 1925.

The site is distinctly neolithic though it was used in later days by a Bronze Age people. A collection of stone implements, flints, and potsherds, of Neolithic and Bronze Ages, formed by Miss Murray, is shown in the Valletta museum.

THE JIGANTEA AT GOZO. Gozo, the sister island of Malta, whose local name is Howdesh, contains important archaeological remains, the most remarkable being the so-called Giants' tower. Driving up from the

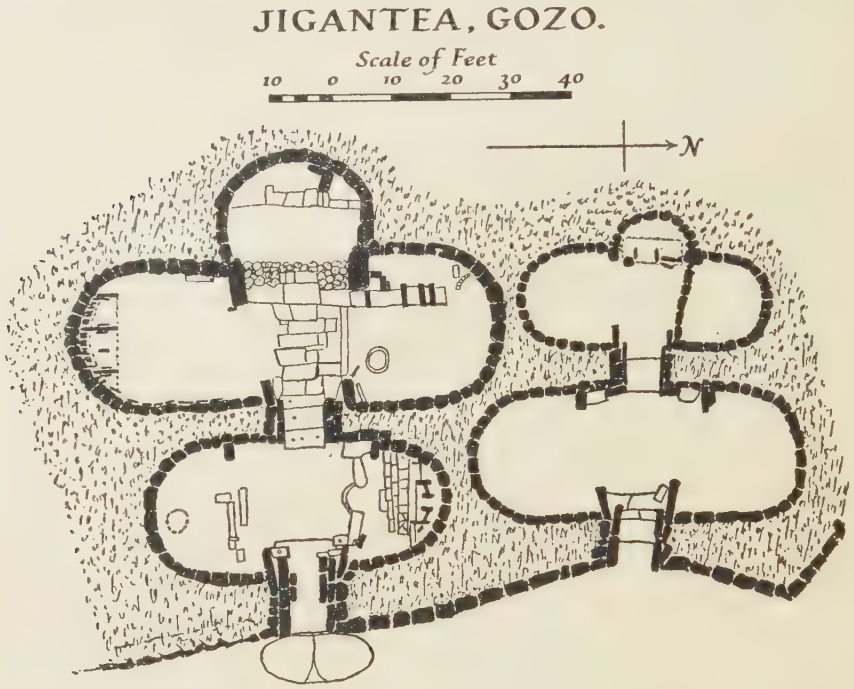


FIG. 9

quay towards Victoria, the huge monument is seen towering on the high plateau to the east of the village of Xaghra or Katcha, to the right of the main road. The entrance is in the bend of the steep road leading to Xaghra and the ruins are reached after walking through several fields to the east.

The ruins were excavated in 1827 and abandoned since that date ; this explains the dilapidated appearance of the monument, which was left to the mercy of endless generations of children and to the inclemency of all weathers. They are however more striking than any of the Maltese ones, the outer walls being built of the rough crystalline limestone quarried in the neighbourhood (plate XI).

Jigantea (fig. 9) resembles very much the Mnaidra group of ruins. It consists of two separate buildings, each having two sets of parallel elliptical areas. The southern temple is the larger of the two. A paved corridor, starting from a magnificent gateway, leads to an elliptical area 52 ft. long with a spacious apse at each end. Blocks of carved stone, greatly damaged through exposure, are laid along the walls. The second elliptical enclosure, 70 ft. long, contains debris of niches and altars and also several carved blocks. A Phoenician inscription of ten letters is cut on a flagstone on the floor of the main corridor, at the end of which is a semicircular apse at a slightly higher level.

The northern building is not so elaborate as the first one ; there is no doorsill at the entrance and the elliptical areas are smaller.

The outer walls of both temples are made of huge hard stone blocks. The slabs and blocks of soft globigerina limestone must have been quarried miles away from this site as no trace of this rock exists in the vicinity. Most of the uprights are about 16 ft. high, one of them being fully $17\frac{1}{2}$ ft. long and $12\frac{1}{2}$ ft. broad.

The potsherds met with in these ruins are of the Maltese Stone Age type. Unfortunately, however, no systematic excavation has ever been carried out in these ruins, and the pottery and other objects buried in them were either destroyed in the course of ages or thrown about carelessly when the site was cleared in 1839. It is still in private hands but one may hope that the temples will be thoroughly searched and eventually repaired when the Government acquires them.

Santa Verna. A few megaliths are the only visible remains of the site excavated in 1911[8] at a place called Santa Verna. This is not very far from the Jigantea and one has only to follow the steep incline leading to Xaghra, when, taking the first turning to the left, close to the small chapel of Sant Anton, a lane is reached leading to an open space on which the mound of the ruins comes in view.

When excavated, five enclosures were cleared containing fireplaces, ashes, remains of food and a considerable amount of exquisite potsherds, clear evidence of a Stone Age settlement. Some of the potsherds, now in the Valletta museum, are superior in technique to any found at Tarxien ; the flint implements also show excellent workmanship.

This site must have been selected for the building on account of its unrivalled position, commanding, as it does, a fine view of the steep surrounding hills, the rich deep valleys, the charming bay of Marsalforn and the deep blue Mediterranean in the distance.

[8] See *Papers of the British School at Rome*, VI, 105.

Population and Agriculture in Roman Britain

A reply

by H. J. Randall

IT is with great diffidence that I venture to make a few criticisms upon certain aspects of Mr R. G. Collingwood's most suggestive paper in the September number of Antiquity on 'Town and Country in Roman Britain'. He is an expert, I am an amateur; he has probably forgotten more about Roman Britain than I ever knew; but the points that I desire to discuss are matters of general inference rather than of expert knowledge.

It is extremely desirable that we should have an attempt to estimate the population of Roman Britain based upon scientific principles. As no statistics are, or can be, available, any attempt must be largely guesswork; but 'shrewd guessing' based upon such evidence as we have is one thing; and pure guessing based upon what the guesser thinks that the population ought to have been, is another. Mr Collingwood has for the first time worked out the problem upon definite principles and has arrived at a result of about half a million as 'something like a maximum estimate'.

I do not desire to question this result, but it is another matter altogether when it is worked out as 'under 9 to the square mile' and this is made the foundation for the inference that the Romano-Britons 'practised a primitive form of agriculture, and not only that but stood quite low down in the scale of even primitive agricultural methods'.[1]

Apparently Mr Collingwood has accepted from Professor Carr-Saunders the dogmatic proposition that a population of less than 9 to

[1] A little more information about the basis of the computation would be useful. The quotient of 'under 9 to the square mile' is apparently based on the area of England and Wales (58,340 square miles) including the portions of Northumberland and Durham lying beyond the Roman Wall. It is compared with an estimate of 26 to the square mile in 1066. No information is given as to how the figure was obtained, but presumably it is based upon the Domesday Survey of 20 years later. Wales was left out of Domesday for obvious reasons, and we have no means of obtaining even an estimate of the population of Wales in the eleventh century.

the square mile presupposes a very primitive agriculture. It is laid down as a principle without any qualification whatever. It seems to be clear that if it is true at all, it can only be true under certain rigidly defined conditions.

One obvious qualification is the area upon which the computation is made and the extent both of the cultivable land and the land actually cultivated within that area. For example, any attempt to estimate the agricultural efficiency of Australia upon a calculation of the average population per square mile would be nonsensical ; because the area of desert is so large that only a limited portion of the island continent can be cultivated in any fashion. This limitation applies in a lesser degree to Roman Britain because large areas of it were sparsely peopled and certain areas almost unoccupied.

Consideration of a modern example may be profitable if not conclusive. The island of Tasmania resembles in many ways a little Britain of the pre-industrial ages. Its manufactures are now steadily increasing with the development of cheap hydro-electric power, but the staple supports of the people are still, and 20 years ago were predominantly, agriculture and mining. Yet at the census of 1921 the total population was just 8 to the square mile. Of this population one-fourth is concentrated in the capital, Hobart ; this is a very much greater proportion than can be fairly assumed for Roman London. The difference is due to the progress of industrialization, and the population actually supported by agriculture and mining and the industries and trading directly dependant upon them would therefore be considerably less than even 8 to the square mile.

Are we then entitled to assume that the agriculture of Tasmania stands ' quite low down in the scale of even primitive agricultural methods '? The reply of the Tasmanians to such a suggestion would probably be expressive and forcible. The agricultural statistics of the island are quite sufficient to demonstrate the high quality of its cultivation. A modern example of this kind must not be pressed too far, but it suffices to show the danger of arguing from generalized propositions, without close attention to the limiting conditions.

A wise political thinker once said that many political arguments would be settled, or at least diminished in temperature, if people would ask themselves the question ' How much '? How much socialism do I desire, how much protection, how much self-determination, and so forth? So when Mr Collingwood speaks of the primitive

agriculture of Roman Britain, we would like to ask ' How primitive ' ? Was ploughing practised or merely spade or hoe work ? If ploughing, was the hand-plough or the ox-plough used ? If the latter, was it the two-ox plough or the eight ox-plough? Was there any rotation of crops, and if so, what? It may possibly be answered with truth that there is not sufficient evidence available to answer these questions accurately. People accustomed to petrol tractors might apply the word primitive to any of them, but they indicate very definite steps in the progress of agriculture, and very definite differences in the yield of agricultural products. If the questions cannot be answered we are driven to other lines of inquiry.

Mr Collingwood goes on to say :—

' In choosing naturally cultivable soils for inhabitation, the Romano-Britons followed pre-historic usuage. . . The " ancient Britons " were driven to cultivate the miserable soils of the mountain-side because they could not face the capital expenditure of clearing the better soils of the valley '.

If this last sentence is meant as a statement of fact and not a figure of rhetoric, it cannot be substantiated. Neither the 'ancient Britons' nor any other people ever attempted to cultivate the 'miserable soils of the mountain-side '. They did cultivate the lighter soils of the uplands, especially favouring those of the chalk, the oolite, and the mountain limestone, but always avoiding the heavy clays and the valley bottoms. A visit to a typical region of upland farms, like Wales, will show the thing to perfection. There the mountain-sides remain untilled as they have always done ; but the uplands are fully occupied by small farms, each even in these days with one or two arable fields, right up to the 1,000 ft. contour and sometimes even beyond. But it is not necessary to go so far afield. A few short journeys from Oxford are all that are necessary. The Cotswolds (oolite) and the Berkshire Downs (chalk) have been regions of human settlement from the Neolithic Age onwards. Still, after more than a generation of acute agricultural depression, perfectly good arable land yielding satisfactory crops can be found nearly up to the summits of both.

Mr Collingwood appears to have been misled into thinking that a light soil is necessarily infertile. This impression is confirmed by the following sentence. ' Consequently the profits of agriculture in prehistoric Britain were relatively low, and the necessary outlay of labour relatively high '. Neither the premiss nor the conclusion is justified by the facts unless the word ' relative ' is given a very extended

meaning. Has Mr Collingwood forgotten that the most famous revolution in English agricultural methods—the Norfolk rotation initiated by Thomas Coke of Holkham—was evolved upon the light sandy soils of northwest Norfolk, and thence adopted for light soils in other parts of the country? The system of cultivation for a light soil is quite different from that necessary for a heavy clay. The clays demand constant and efficient drainage, while the light soils need little or none. The clays may require three or four deep ploughings in the year, while the light soils need but one or two shallower ones. It is on the clays and not on the light soils that the necessary outlay of labour is high. The ultimate yield per acre on the clays may be greater, but the yields per man employed may be less. It is because labour is dear and wheat is cheap that the heavy clays have been slipping back to pasture for the last fifty years, while the lighter soils have retained a higher proportion of arable cultivation.

Mr Collingwood's estimate of the population of Roman Britain is made up as follows :—

(a)	London	25,000
(b)	Large towns	100,000
(c)	Small towns	75,000
(d)	Villages	150,000
(e)	Villas	50,000
(f)	Army and dependants	100,000
		500,000

This at once raises the question how this population was supported, and it must be considered in a little detail. (a) The point that obtrudes itself at once is the small proportion allowed to be directly dependant upon agriculture. The villas and the villages account for 200,000 between them, only two-fifths of the whole. Possibly some of the townsmen and some of the army dependants may have indulged in agricultural operations subsidiary to their main occupations. If another 50,000 were allowed for them we still have a position in which the agricultural population was feeding double its own number. It is evident, therefore, at the outset that Mr Collingwood's 'primitive' agriculture was something far beyond a mere subsistence agriculture.

(b) The population of London is put 'as a rough guess' at 25,000, or 5 per cent. of the whole. It was, therefore, quite a large town as towns went in the days before the factory system. How then

did it get its living? Obviously as a trading centre with perhaps some manufacturing besides. Now a town of this size needs a considerable trade to support it. The sites of Roman Britain, even down to the villages, yield evidence in plenty of the import of continental products, but these imports must have been paid for by corresponding exports. There was certainly some Roman mining (though Mr Collingwood does not include any miners in his population estimate), but hardly sufficient, after supplying the needs of the country itself, to account for a trading town of this magnitude. Nor would British oysters, however famous and delicious, fill the gap. There remains nothing but the surplus products, direct and indirect, of British agriculture. We know from a reference in the eastern edict of Diocletian that British cloth was known as far east as Constantinople, which seems to show that wool was even then a ' staple ' product of the island. This raises a point to which Mr Collingwood does not appear to give any weight. The Celtic speaking people in Britain were great pastoralists. Before the coming of the Romans the tribal wars and raids must have kept down the stock of cattle, sheep, goats and swine; but after the imposition of the Roman peace there would be no reason why the stock should not increase up to the limit that the available pasturage could support. A large increase in the live stock would mean a substantial increase in the means of subsistence apart from the cultivation of the arable land. The change of conditions along the English–Scottish march before and after the union of the crowns affords a good historical parallel.

(c) Then there are the smaller towns with a total estimated population of 175,000, making with London a total equal to that of the entire agricultural population. Mr Collingwood argues that the building of the towns was primarily a political move ; that there is no evidence that any of them developed considerable industries ; that the capital spent in creating them was completely wasted ; that they impoverished the countryside ; and that they finally crumbled away. The argument proves too much. Mr Collingwood admits that ' they were still doing their best to fulfil their political functions even in the fifth century '. If these civitates were subsisting long after the ' withdrawal of the legions ', they can hardly have been so alien to the population as the theory requires.

It is patent on Mr Collingwood's own showing that they existed for the whole period of the Roman occupation and beyond it (300 to 400 years), subsisting apparently all the time upon the progressive

impoverishment of the countryside! Those towns and that countryside must have been like a famous monarch and taken an unconscionable time in dying. The theory *may* be sufficient to account for their disappearance: it is palpably insufficient to account for their maintenance. There is no mystery at all about the economic basis of a country market town. It makes or obtains the things that the countryside wants, and it markets the products of the countryside in exchange, making a profit on both sides of the transactions. It draws its wealth from the surplus produced in the countryside. If no such surplus exists it crumbles away, not after the lapse of 300 to 400 years, but forthwith.

(d) Further we have the army and its dependants—100,000 people. It is quite probable that the taxation necessary to maintain the army on the British frontiers was not all raised in Britain itself; but it is equally probable that the whole of the food that it consumed was grown in the country. There is no suggestion anywhere of any import of food into Britain.

The matter does not rest here, nor does it rest entirely upon a balance of probabilities. We have some evidence, small but very definite, upon the capacity of British agriculture round about the year 360 A.D.—just a few years before the terrific disaster of 367.

In considering this evidence we must recollect Mr Collingwood's theory. It is in short that the Romans effected no improvement in the prehistoric agricultural practices of Britain; that they imposed the towns as parasitic structures upon an unwilling countryside; and that these towns steadily impoverished the surrounding country. We are now at 360 A.D., more than 300 years since the landing of Aulus Plautius. It is evident that upon the theory, the impoverishment must have gone very far indeed by that time; it is difficult to imagine how either towns or countryside could still have existed in any tolerable manner.

Now for the evidence:

(a) 'The general laudation of the fertility and wealth of the island in which the Panegyrists indulge is corroborated by such practical evidence as the fact that Constantius collected masons and artizans for the rebuilding of the Gallic Autun in Britain, "quibus illae provinciae redundabant"'.[2] The quotation is from Eumenius.[3] A

[2] Oman, *England before the Norman Conquest*, p. 153.

[3] Quoted by Haverfield, *Roman Occupation*, p. 220.

panegyrist is not to be taken too literally ; on the other hand, there is no necessity to assume that he lied uselessly. Building is only possible where there is surplus wealth, and the surplus wealth of Britain that paid for and gave scope to the abundance of skilled artizans can only have come from mining and agriculture and principally from agriculture.

(b) Zosimus, Julian himself, and Ammianus Marcellinus all record the export of great stores of corn from Britain for the use of the devastated provinces of the Rhineland in 358 and again in 360. It seems to have been no unusual thing. It was apparently so dependable that Julian reorganized the trade, augmented the carrying fleet and arranged inland water transport on the other side.

If these are the results produced by primitive agriculture, what may we expect from high farming ?

To sum up this portion of the argument. Mr Collingwood's theory requires us to believe that a farming community of 200,000 (or 250,000 at the most) practising a primitive agriculture upon miserable soils was able

(a) to feed and maintain itself ;
(b) to support a great trading mart of 25,000 persons ;
(c) to support and feed country town populations of 175,000;
(d) to provide food for an army and dependants of 100,000;
(e) to pay for large imports and sustain an abundance of skilled artizans;
(f) to provide an exportable surplus of grain.

It is needless to say that medieval England, practising a subsistence agriculture, could never have produced anything like such a result—it is highly doubtful if it could have been accomplished before the industrial and agricultural revolution.

It appears to me, to speak plainly, that the theory is not consistent with the figures or the facts adduced in support of it, and is quite inconsistent with the other evidence available.

It is possible that the proposition that the Romans did nothing to improve the agricultural practices of Britain may be supported, but only upon the ground that it was so good already that the Romans could not improve it. It may be argued that the Britons had nothing to learn from the Romans about the methods of cultivation suitable to our climate. Caesar may be accepted as a sober and exact observer with intimate knowledge of Italy and Gaul. When he writes, ' the

population is immense ; homesteads, closely resembling those of the Gauls, are met with at every turn ; and cattle are very numerous ',[4] the statement may be taken at its face value. Furthermore the facts support it. In the first expedition his army, numbering about 12,000, supported itself for more than a fortnight upon the corn reaped in the immediate neighbourhood of the landing-place. In the second expedition the Trinovantes delivered a requisition of sufficient corn for four legions and 1,700 cavalry with the auxiliaries in a few days.[5] It is no unreasonable assumption that, when the Roman peace had been imposed for a lengthy period upon a people capable unaided of producing results like this, that British agriculture may have yielded all that the records require.

This Romano-British farming is contrasted with the methods of the Saxons who ' were willing to settle in places where capital had to be sunk in clearing woodland ', who sank ' capital in the cultivation of better soils ', and ' tapped new and richer sources of wealth '. I will not comment upon this curiosity of economics further than to inquire where the Anglo-Saxons obtained this alleged store of capital. Capital is nominally the product of peaceful industry ; their's was a period of continuous warfare. Capital in the days before instruments of credit existed could only have been transported in material forms. Coming over in small vessels fully equipped for war, where was the Saxons' capital stored and of what did it consist ?

In the epilogue we are treated to this interesting piece of reconstructed history.

' And now come Saxons, ready to settle and lend a hand at keeping off Picts and Scots. . . These settlers are not enemies ; they are officially made welcome and accepted as allies. . . Hengist and Horsa are not the leaders of a conquering host ; they come with a handful of men in " three keels ", are welcomed, are given land, and settle down as friends and neighbours '.[6]

---

[4] Hominum est infinita multitudo creberrimaque aedificia fere Gallicis consimilia, pecorum magnus numerus. B.G. II, 12. The translation is by Dr T. Rice Holmes. Caesar, of course, is speaking only of the portion of southeast Britain that came under his direct observation.

[5] It is interesting to remember that a corn-symbol appears on the reverse of the coins of Cunobelin.

[6] Mr Collingwood now apparently accepts Hengist and Horsa as historical personages; a few years ago he thought that their names 'put a strain on our credulity'. *Roman Britain*, p. 100.

The last sentence irresistibly reminds one of another legendary invitation : that to Fitzhamon and his twelve knights in Glamorgan in the eleventh century. The result was apparently as satisfactory to the inviters in one case as in the other. Gildas at least had no doubt of his opinion about inviters and invited.

The Saxons seem to have changed their character in a remarkably short period of time. They took part, as Mr Collingwood has informed us two pages before, in the confederation of barbaric tribes that ' destroyed the military forces and ravaged the length and breadth of the country ' in 367. The first exploit of the Saxons on that occasion was to overwhelm the coastal defences, and to defeat and slay Nectarides the Count of the Saxon shore. Then they proceeded, according to Mr Collingwood, to burn and loot the Roman villas wherever they could and to cut the throats of the owners and their families. The Romano-Britons may be pardoned for thinking that as a demonstration of friendship and alliance this was rather overdoing it.

On the other hand, there is no doubt that the Saxons were given an ' official ' welcome ; but some among them may from time to time have been faintly sceptical about its peaceful character. It consisted as a first line of the British fleet, presumably maintained as a demonstration of friendship to any doubting Saxons who might otherwise have been chary of landing. Behind the fleet was the long line of forts under the command of the Count of the Saxon shore, and to put the official character of the welcome beyond any doubt the second Augustan Legion (or part of it) was moved from Caerleon to Richborough. For all that a Saxon chieftain who encountered the second legion outside the walls of Richborough might have been more impressed by the official aspect of his welcome than its friendliness. This organization of welcome was maintained from the end of the third century to the close of the Roman occupation.

Then we know what Gildas thought about the Anglo-Saxons. He exhausts his vocabulary of invective in an attempt to describe the ferocity, cruelty, and bestiality of these barbarian and pagan savages. Mr Collingwood dismisses Gildas as belonging to a much later period. Apparently the theory requires that the Anglo-Saxons passed through a cycle of milk and nectar sandwiched between two other periods of utter ferocity. The period of meekness is conveniently placed at a time when we are without contemporary records, which greatly facilitates conjecture. I have dealt at some little length, and I hope

faithfully, on another occasion[7] with this Belloc-like hypothesis, and therefore will not pursue the point further. But it is surprising to find Mr Collingwood in such company.

Finally it will be fair for me to provide a target for a counter-attack. I will put it as a series of propositions.

(a) That a fundamental distinction in English history is one between the upland peoples who despised and feared the valleys, and the valley peoples who disliked the uplands.

(b) That the prehistoric people were uplanders, except perhaps the folk of the lake villages.[8]

(c) That Cæsar found an upland Celtic speaking people in southeast England practising agriculture and practising it well.

(d) That the Romans did not attempt to interfere with this upland tillage ; first, because they did not desire to do so, and secondly, because it is impossible to *make* an upland people conquer the valleys. When the process has taken place, it has been most protracted.

(e) That it is incredible that the intense Romanization of the civil part of the province in every department of life (*vide* Haverfield) had no effect upon agriculture, which was the foundation of all.

(f) That on the contrary it is reasonable to assume that the Romano-Britons, with their other borrowings, learned and adapted all that was suitable of the best agricultural practice of the times.

(g) That they learned their lessons so well that by the third and fourth centuries the province was in a flourishing condition ; that down to 367 A.D. it maintained a great trading centre, supported an extensive town life, fed a large garrison, and had a considerable surplus available for export.

(h) That this civilization suffered a deadly blow in 367 and gradually crumbled into decay.

---

[7] 'Britain: Rome: England'. *Edinburgh Review*, October 1925.

[8] As a general statement I believe this to be correct, but there may quite well be local exceptions. Fleure and Whitehouse have made us familiar with the 'valley-ward movement' of upland peoples and this very slow movement may have been accelerated in places where the soils are propitious. Sinodun Hill on the Berkshire bank of the Thames opposite Dorchester appears to be a typical hill-top camp. But it stands on a valley-ward extension of the chalk, a sort of prehistoric Windsor Castle.

(i) That the country then sustained a long series of invasions by valley peoples, accustomed to live in forest clearings, from across the North Sea. These people settled in the valleys and lowlands and nowhere else.

(j) That these invaders, during the whole of the pagan period at least, utterly destroyed the upland tillage that they found, and slaughtered or expelled the tillers.

(k) That the uprooting was so complete that the upland fields became pastures, the villages wastes, and their names as though they had never been.

(l) That this process was carried out (except for a few scattered islands of uplanders) roughly up to the limits of the civil district of the Roman province, and in some parts beyond it.[9]

If I do not claim, like Mr Collingwood, that my theory ' fits the known facts like a glove ', I do with due deference submit that my glove fits them a great deal better than his.

[9] The clearing of the country was far less thorough in the later stages of the conquest than in the earlier. Freeman pointed out, on the evidence available in his day, that the character of the conquest of Somerset and Dorset was different to that of Kent and Sussex. Wiltshire and Hampshire provide evidence of the survival of some Celtic population. The survey of the English Place-name Society is throwing welcome further light on the problem.

Mr Collingwood and Mr Randall: a note

by R. E. M. Wheeler

IN this question of the population of Roman Britain, my friends Mr Collingwood and Mr Randall have discovered differences of opinion, and a persuasive Editor has now imperilled my friendship with both by asking me to join issue. This I have resolutely refused to do.

* * * * * * *

But, after all, one guess is as bad as another. Mr Collingwood guesses half a million. Mr Randall guesses . . . but on re-reading Mr Randall I find that he doesn't guess at all. He passes lightly from persuasion to persuasion and ends with *x*. Indeed, he loses interest in the statistical problem and concerns himself mainly with the Higher Agriculture or, as he would phrase it, the Agriculture of the Uplands. He bravely ends, however, with Twelve Points which he gracefully provides as ' a target for counter-attack '.

The beauty of it is that Mr Collingwood (although I have not asked him) would probably be amongst the first to agree wholeheartedly with almost all these Points. Only in the first three or four of them can I see any *casus belli*. Mr Randall declares that ' a fundamental distinction in English history is one between the upland-peoples who despised and feared the valleys, and the valley-peoples who disliked the uplands ', and adds that ' the prehistoric people were uplanders, except perhaps the folk of the lake-villages '. This statement we have all of us heard somewhere before. To say that it is wrong would be to verge upon hyperbole but that, in its normal context, it contains a somewhat treacherous *suggestio falsi* would be the solemn truth. The statement is one which has been popularized by an able and eloquent school of geographers, working in a mountain-environment. But as a generalization it is calculated to mislead the young. To describe our prehistoric forbears as ' hill-dwellers ' is to forget that the gravel banks

of our English rivers team with vestiges of prehistoric habitation. Pottery and other relics show that the banks of the Thames along the Boat-race course, to say nothing of the Abingdon reaches, carried an extensive population from the Stone Age onwards. In the river-system of the Wash, it is scarcely possible to open a gravel-pit without finding ' Peterborough ' pottery or beakers or Early-Iron-Age sherds. Ask Mr Wyman Abbott of Peterborough. And look at Dr Cyril Fox's maps of the Cambridge region. Look again at the gravel pits along the Bedfordshire Ouse. Why, our prehistoric valley-population was (relatively) immense ! It did not *lump* as on the open downs ; it was strung out along the gravel strips, and therefore does not bulk so largely on a distribution-map. But it was there.

The essential truth of the matter is already anticipated by Mr Collingwood himself. The primary factor in our prehistoric distribution was not upland *versus* valley. It was open ground *versus* closed ground, down or heath *versus* forest. This is now a trite saying, but evidently needs re-emphasis. In a mountainous country (such as that which forms Mr Randall's daily horizon) the heights are liable to be open and the valleys closed or forested. Progress in that milieu towards the more sheltered and fertile, if less tractable, lands is therefore valley-ward. In a low-lying country, on the other hand, the determining element is not altitude but subsoil, and the equivalent movement is therefore a lateral one, from chalk or gravel towards clay. The essential change which the distribution of our population underwent between A.D. 1 and 1000 was that of *a partial movement into forest-land ;* the so-called valley-ward drift being merely a local and special manifestation of this movement.

With this not unimportant modification, Mr Randall's points seem to be unassailable. I doubt, however, whether they really convey the main gist of Mr Randall's thesis, which is, that Mr Collingwood's estimated population of half-a-million is too small to have supported the economic burden which we are compelled to put upon it. Here Mr Randall, I think, scores; we must certainly add to that half million. Let us very briefly glance once more at the principal factors, taking Mr Collingwood's estimate as a provisional working basis.

We presume as an axiom that the whole of the population of Roman Britain derived its food from the home-market ; foreign imports such as wine and oil must have been relatively inconsiderable. If, therefore, we are to appreciate the economic structure of this scheme, it is necessary at the outset to distinguish if possible between the food-producing and the non-food-producing elements in the population. We are at once

landed, of course, in the realms of conjecture, but we may distinguish certain probabilities which may be tabulated thus :—

1. The standing-army of 40,000 men, or, with their dependents, upwards of 100,000 souls, may under favourable conditions have spent a part of their spare time upon the cultivation of allotments, and so have assisted directly in their own maintenance. We have however no good evidence that the Roman imperial soldier, even in times of comparative peace, was able to indulge extensively in agriculture. I have not forgotten the terraced hill-side at Housesteads on the Wall; but we have in any case to allow for a fairly considerable civilian population outside the larger permanent forts, and it is only reasonable to suppose that the building, upkeeping and guarding of the frontier-fortifications and the patrolling of the adjacent countryside remained a primary and exacting charge upon a soldier's life. It would at least be on the safe side to assume that 60,000 or 70,000 of the 100,000 were non-productive dead-weight so far as food-supply was concerned.

2. Then there were the mines. It is impossible to calculate any near figure for the number of miners, say, in the 2nd century of Roman Britain. The number must nevertheless have been considerable. There were mines on Mendip, in the Forest of Dean, in Carmarthenshire, Anglesey, Flintshire and elsewhere—copper, iron, lead and silver, gold, perhaps tin ; and 12,000 would not, I think, be an unreasonable figure to guess for the actual employees, or 30,000 for the mining population all told.

3. Then there is that very considerable population of merchants and middlemen whose presence is witnessed by hundreds of tons of Roman continental pottery, etc., up and down the land and indeed by the whole rapid process of Romanization. I doubt whether 40,000 financiers, importers, transporters, shop-keepers, travellers and so forth would be too large a share to allot for this section of the population of the island ; say 90,000 or 100,000 including families and allowing for temporary residents from abroad.

4. Then we have allowed nothing for the Roman civil service. A total of 5,000 (families included) would be a reasonable minimum for this.

Other items might easily be added to the above. For example, a not inappreciable proportion of the industrial population—potters,

metal-workers, builders and the like—must have been practically non-food-producing. I say nothing, moreover, of the increase in partially unproductive slave-labour under the Roman regime. All these for our present purpose I will ignore in order to avoid any possible risk of over-estimating the non-food-producing section of the population.

We have thus already allowed for something over 200,000 non-food-producers in Roman Britain. To these must be added a proportion of the remaining (hypothetical) 300,000 to represent the young or infirm who were unable to work upon the land. Twenty per cent. would probably be a conservative estimate. That is to say, a further 60,000 would be food-consuming without also being food-producing.

On the total, we therefore have the following result. Upwards (probably considerably upwards) of a quarter of a million out of an assumed population of half a million souls would be consuming food and not producing it. In other words, each Romano-British farmer or farm-hand would have to produce, throughout the year, enough actual food to keep more than two people in a good deal more than bread and butter. This figure is somewhat summarily reached also by Mr Randall, and I cannot help feeling that both of us are really under-doing the case, and that the number of non-food-producers must have been considerably greater.

But the matter does not end there. A generation or more before the conquest, if we may believe Strabo, Britain was already exporting corn. In the 4th century, there are the equally well-known contemporary accounts of the exportation of corn to the Rhineland. These explicit references to our early trade in agricultural products can only give a hint, however, of the real truth. The enormous import-trade of Roman Britain, partly from the Mediterranean but more especially from Gaul and Germany, is apparent on every Romano-British site. To a limited extent these imports may have been paid for in metal or in slaves or (still more rarely) in the products of British industries. But, as in the later era of the Sagas, our exports must have been primarily corn and woollen cloth. This point requires even more emphasis than Mr Randall gives it. The gallant 250,000 (or less) Romano-British farm-hands must, in other words, be supposed not only to have fed continuously upwards of two individuals each, but, at the same time, to have provided much of the capital which maintained a very active Continental trade.

The inference is, I think, inevitable. On purely economic grounds,

it must be supposed that Mr Collingwood has considerably underestimated the agricultural population of Britain. He has also, I think, rather neglected those sections of the population which lived in the less fertile outskirts of the province with hardly any give-and-take as between themselves and their more prosperous neighbours. Take a modern example. The primitive population of the Isle of Lewis can have altered very little, either numerically or economically, since prehistoric times (see the Royal Historical Monuments Commission's report on *The Outer Hebrides*, etc.); it still supports itself on a bare hand-to-mouth basis. Nevertheless, as I am informed, *it sent no less than* 6,000 *men to the Great War*. In Roman times we have sufficient evidence to show that the hills of Northumbria and Wales likewise carried a considerable self-supporting population which would show little or no reaction upon the economics of the Province as a whole (save possibly as a recruiting area for the mines) and is, therefore, ignored in our calculations above. The extent of this fringe-population is, of course, incalculable; but it is worth remembering that there is hardly an excavated hill-fort in Wales which has not produced evidence of native occupation in the Roman period, and that hut-villages from Pembrokeshire to Carnarvonshire have told the same tale.

In short, the population of Roman Britain was not half a million but a million and a half. When all is said and done, the difference is but trivial. Mr Randall and I, whether we agree or not with Mr Collingwood in detail, are in fact following in his footsteps. If in regard to his solution we must say *potest videri ostendisse posteris, non tradidisse*, we implicitly number him at the same time amongst the greater pioneers.

Notes and News

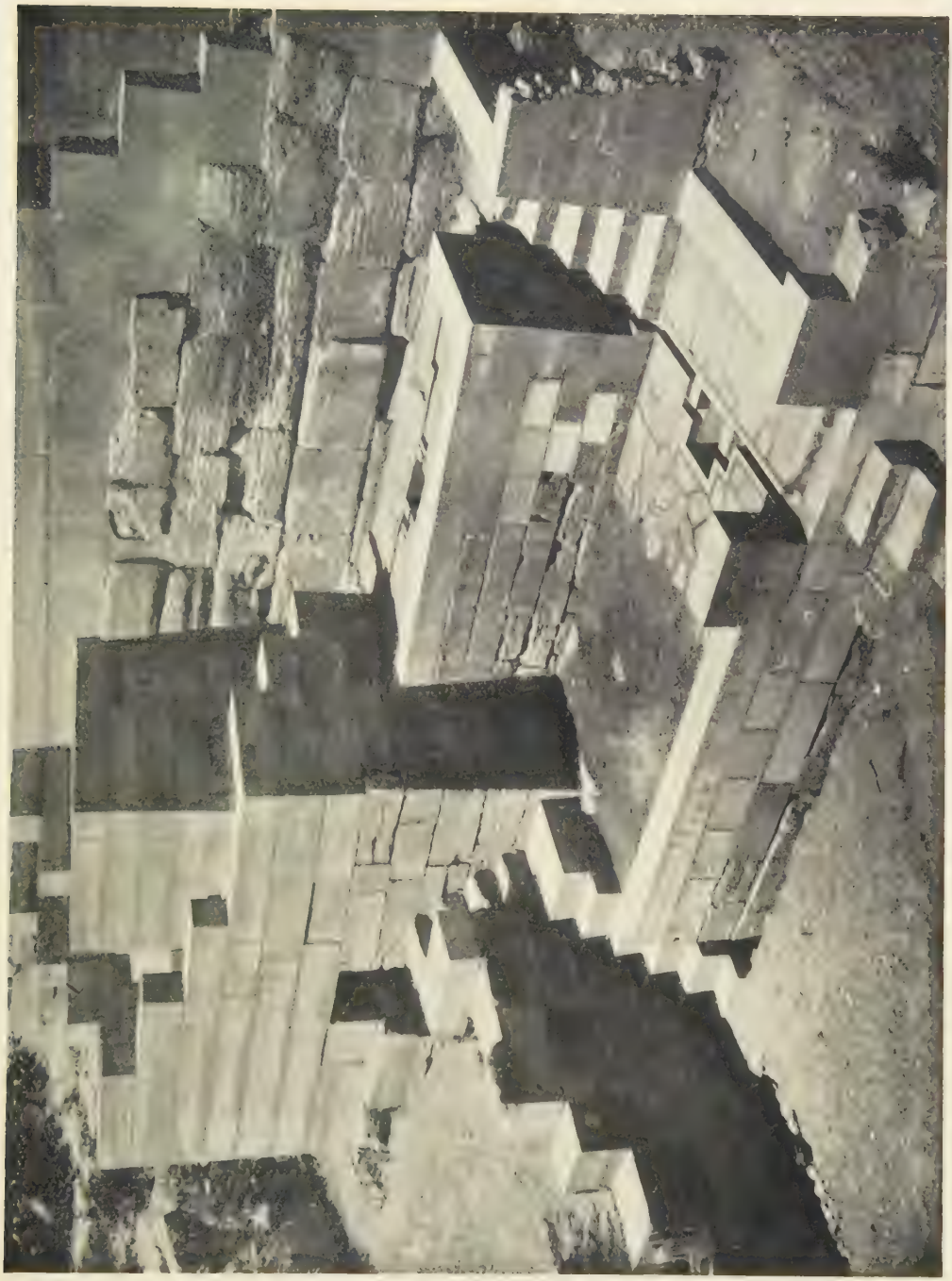
'THE PALACE OF MINOS'

Sir ARTHUR EVANS writes :—

The friendly notice of my second volume of *The Palace of Minos* by Mr Wace in your September number shows that some explanation and reassurance as to one or two points is fairly owing to those interested in the work at Knossos. Let me say then as to the process of reconstitution and restoration, there necessitated to such a considerable extent, that all the recent work has been executed in ferro-concrete and cement, which is painted a conventional brown in the case of the restored wood-work and the cement filling in of the hollows left by the carbonized beams and posts. Even non-archaeologists can therefore detect what is new in the structures, while the replicas of the frescoes—so admirably restored in position by M. Gilliéon, fils—can be seen in their original state in the Candia Museum and ought not therefore to mislead visitors.

In the photographic view given of the East Bastion (plate 1), which at the beginning of this year threatened general collapse, and now restored by Mr Piet de Jong under my direction, the restorations in concrete can be fairly distinguished from the original blocks.

With regard to the record of stratification the absence of any section, in the case cited of the south porch, (where however such shallow materials as do exist were referred to in the text), and indeed throughout the west region of the Palace generally, is due to the fact that it was directly built on the razed surface of the hill-top, presenting a uniform Neolithic level. The successive floors of the building itself, moreover, largely rest on the same level, with very little remains of the intervening periods between them and this Neolithic stratum, which it was not the present object to explore. I am happy to say however that in the more northern region much better stratigraphical evidence has occurred in places, notably in the northern entrance-passage and, to an unexpected extent, under the 'Theatral Area', diagrammatic records of which will appear in my forthcoming volume. With regard to 'Wager system' of excavation it is well to know that it was only carried



PALACE AT KNOSSOS

VIEW OF EAST BASTION AS RESTORED, SHOWING STAIRCASES AND RECESSES DESCENDING IN PARABOLIC CURVES

facing p. 96

out in places where great masses of material had to be removed above the Minoan level. When that was reached this method of rapid clearance at once ceased. Sections of the whole 'Tell' of the Palace will appear in the concluding volume.

Your readers may be glad to know that my third volume, which deals with the remains of the ' New Era ' in the northern and eastern regions of the Palace, is already far advanced towards completion and will, I hope, appear shortly. It will be found to contain much new material illustrating the highest productions of Minoan Art and the life in the great Palace halls, set forth in many cases by colour plates. On the religious side the records of the Minoan Mother Goddess with the Divine Child will be found to be of compelling interest.

There will then only remain for volume IV the sections describing the remains of the latest stage of the Palace history, including the ' Room and of the Throne ', and a summary survey of the clay documents of the linear class B, which belong to this stage. In a more complete form these will, I hope, shortly appear in a continuation of my 'Scripta Minoa', for the publication of which I hope to have the assistance of the new Oriental Institute of Chicago.

It has also been necessary to reserve for this concluding volume the general index, the laborious compilation of which has been kindly undertaken by my sister Miss Joan Evans. I am very conscious of the inconvenience caused to readers by this long postponement, but no really satisfactory index could have been put together without reference to the full materials. A premature digest in the present case would have been quite misleading, owing to the constant emergence of new facts. The excavations and researches, indeed, of the past year, have in some respects revolutionized our knowledge of the Eastern Palace region. At the same time every effort has been made—to an extent that I cannot recall in any other book—to facilitate reference by elaborate tables of contents, and by the arrangement of sections as far as possible in a logical order, with very full résumés; as well as by sub-sections, marginal indications of the subjects and descriptions at the head of every page.

THE SILTING OF DITCHES IN CHALK

Excavators will welcome Dr CECIL CURWEN'S contribution (below) to the technique of excavation. It confirms and amplifies General Pitt Rivers' experiment at Wor Barrow (*Excavations in Cranborne Chase*, 1898, IV, 24; see *Man and his Past*, 1921, p. 212). There

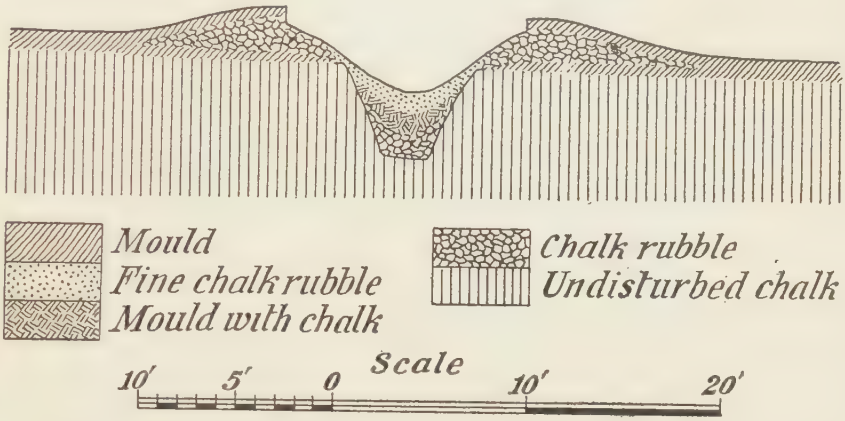
moreover the lapse of time was only 4 years instead of 13, as here. For those of our readers who are not familiar with the methods of archaeological research, it may be explained (1) that the prime object of excavation is to obtain evidence for dating a site ; (2) that potsherds (and other objects) constitute such evidence ; (3) that the majority of prehistoric sites in northwest Europe have *ditches*; (4) that these ditches, and therefore the site, can be dated when pottery (or other objects) are found in them in some specific relation to the silting. Dr Curwen writes :—

On Thundersbarrow Hill near Shoreham (Sussex) is a series of military trenches that were dug during the years 1915–16. As these have never been filled in it is possible to study the process of natural silting that has taken place in 13 years. The accompanying figure (p. 99) shows a carefully measured section through one of these trenches, taken after clearing out a portion of the silting down to the original trench bottom. It will be seen that whereas the trench was originally 5 feet deep below the turf, with an additional depth of $2\frac{1}{2}$ feet provided by the chalk parapet thrown up on each side, the chalk has silted in to a depth of $3\frac{1}{2}$ feet in 13 years. The face of this filling as revealed in the section shows that it consists of three principal layers, which from below upwards are as follows :—(1) coarse chalk rubble ; (2) mould with chalk ; (3) fine chalk rubble.

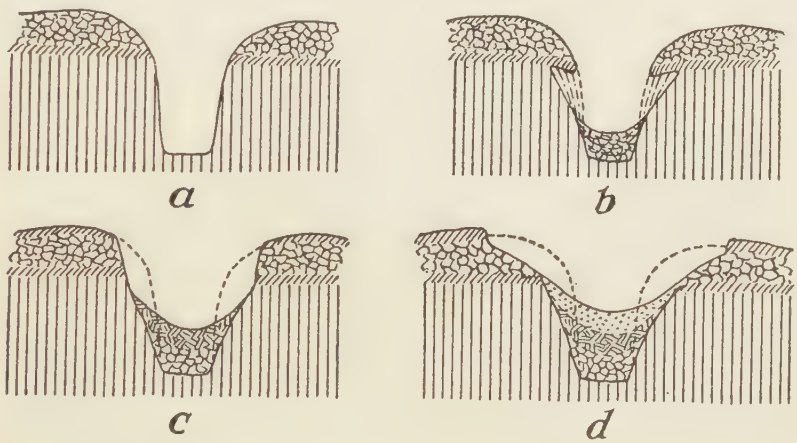
The four diagrams, *a*, *b*, *c*, and *d*, illustrate the stages of this silting as I have from time to time observed them, during the last few years. They are not strictly drawn to scale inasmuch as the original width of the trench when first dug was not measured, nor the original height of the parapet ascertained, but I feel sure they may be taken as approximately correct.

In diagram *a* the trench is shown more or less as it was when first dug. In *b* the walls of the trench below the turf-line are crumbling, especially under the influence of frost. The bottom of the trench gradually becomes filled with a rather coarse chalk rubble, which, as it collects, protects more and more of the lower part of the walls, while the upper part goes on weathering. The result is that the trench tends to become trumpet-shaped in section, that is, the walls slope more steeply in their lower than in their upper parts. This disintegration goes on *under* the old turf-line, which, being matted with grass and roots, does not give way until it is very much undermined, but sags downwards under the weight of the chalk rubble forming the parapet. Some of this latter also trickles down into the trench, but it is some few years before the turf actually breaks away, bringing down part of the parapet with it.

Section through old military trench, Thundersbarrow Hill. shewing result of 13 years silting.



Diagrams illustrating the stages observed in the process of silting.



R.G. 1929.

This then forms the layer of mould with chalk in diagram *c*. The final stage is the much more gradual disintegration of the inner slopes of the parapet--more gradual because less steep—and this results in the layer of fine chalk rubble (diagram *d*). This is the present stage, and it may be expected to continue at a steadily decreasing rate as the slope becomes less and less steep, until finally the ' angle of rest ' is attained and the weathering is so slight as to allow grass to grow on it and turf to form. After that no further weathering is possible.

The outer slopes of the parapets have long ago reached that stage, because they have always been much less steep ; consequently they are now covered with a fairly thick layer of turf and grass which terminates abruptly on the crest above the inner slope.

With the passage of centuries turf-mould has a way of shrinking almost to vanishing point ; hence the rarity with which old turf lines under ancient ramparts are to be found. Thus it is not surprising that deep layers of turf-mould in the filling of the ditch are also seldom found.

The morals of all this are chiefly four :—(1) the walls of the original ditches may be expected to have been much steeper than they are found to be on excavation ; (2) ramparts are denuded by weathering at the expense of their width rather than of their height, unless the original height was artificially enhanced by revetments of chalk blocks or timber ; (3) the degree of coarseness or fineness of chalk silting is in proportion to the rapidity with which it has collected ; (4) by far the greater part of the filling of a ditch collects within a very few years of its having been dug, unless the ditch has been systematically kept clear during the period of its use.

A BRONZE STATUE OF SEPTIMIUS SEVERUS

Mr W. A. Stewart, Technical Artist of the Harvard Boston Expedition (Pyramids, Cairo) contributes the following note :—

About a year ago [see Antiquity (1928), II, 220, 355], a peasant ploughing a piece of rough land near Kythraea in Cyprus, found a large bronze statue broken, but in fairly good condition. With the cupidity of his kind he proceeded to break it still more in the hope of finding gold inside it ; but, being disappointed and the bronze being too big to hide, he finally gave it up to the authorities at Nicosia.

The head was recognized to be that of the Emperor Septimius

HEAD OF BRONZE STATUE OF SEPTIMIUS SEVERUS AFTER RESTORATION
Ph. W. A. Stewart

facing p. 100

Severus, and as the figure is nude, the statue probably represents that Emperor as one of the gods, and may have been a royal gift to a local temple.

The pieces, as found, had been stored in the Museum until I was asked in August to undertake the cleaning and restoration. The head was broken off at the neck, and a large irregular hole in the scalp extended in two cracks down the sides of the head behind the ears. The torso was split in front and the left shoulder-blade was driven inwards badly. Both arms were broken off at the original joints near the shoulders, and the arms themselves were broken at elbow and wrist and the hands were smashed off. The body was broken off on the original joint of the waist line ; the legs broken at the hips, knees and ankles and one foot was missing. The left thigh was split and badly broken in and a small 'Jack' had to be used before the metal could be raised into position and the break closed up and soldered from inside.

The metal, however, was in fairly good condition ; and after cleaning the most corroded parts with caustic soda and Rochelle salt, a finely polished surface of beautiful dark green patina was revealed. A great deal of incrusted clay and lime had to be scraped away with a blunt knife before the detail of the hair and beard was clear. The right arm was so mutilated that it could not be joined to the body without modelling the missing parts, and the time at my disposal was not enough to allow of my doing this, or of mounting more of the figure than that shown in the photograph (plate II). The worst damage to the legs was repaired and the joints found and marked, so there is every possibility that the complete figure may eventually be mounted up.

The bronze was in such sound condition that it could be scraped bright on the inside, and the joints fastened with solder. The hole in the scalp was filled in with lead and modelled with soldering irons to match the rest of the hair.

Many holes and a large part of the back were filled in with plastic wood and coloured to match the patina. After wax-polishing, it was almost impossible to distinguish the plastic wood from the bronze. The statue has a lively movement and poise, and the workmanship is as fine as any Roman bronze yet discovered. It had originally been cast in parts and fixed together on lead collars with small oblong bronze plates hammered into the line of the joints. The sunk spaces of these plates can be seen in the large photograph of the head, along the line of joint between the neck and shoulders.

DISCOVERIES AT BIRDOSWALD, ON HADRIAN'S WALL

The season of 1929 has produced results of the first importance on the line of Hadrian's Wall. It has long been felt that the Fort of Birdoswald was the place where, more than at any other, the solution of most of the problems was likely to be found ; and, for several years past, the work that has been done elsewhere has been to a considerable extent designed as a preparation for a direct attack on that fort. During the past summer the first phase of this attack was launched. The results were even more valuable than one had hoped. The intention of this year's campaign was to find confirmation or amendment for the theory, generally received since about 1912, that the history of the Wall comprises three main periods :—(1) its foundation in the reign of Hadrian, and occupation until the disaster of 181 ; (2) a second period, beginning with repairs following on this disaster and extending to about 270 ; (3) a third period, beginning after 270 and lasting until about the end of the fourth century. A fourth period, supposed to begin after the disaster of 367, lacked archaeological evidence.

The sequence of these three periods rested, in the main, on the evidence of the coins found at the Poltross Burn milecastle in 1910 ; and although it has been found to work fairly well in practice, it gave rise to a number of difficult questions, and stood in great need of a wider and firmer basis. This was the idea which prompted the Durham University Excavation Committee to select a small part of Birdoswald fort and subject it to intensive study. The part selected was a single building, which lay exactly over the filled-in ditch of the Turf Wall, and was therefore sealed on its underside, so as to contain no occupation-debris that could possibly have been deposited before the Turf Wall was superseded by the Stone Wall. This building was completely cleared out down to the peat filling of the ditch.

The most important finds—indeed, the most important made on the Wall for many years—were two inscriptions. One recorded the restoration of some large building under Severus, about the years 204–208. The other tells us that various integral parts of the fort were re-built under Diocletian and his colleagues between 296 and 305. These enable us to fix the chronology of the phases in the history of the Wall in a slightly different and far more secure manner. The second period must now be made to begin with Severus ; a satisfactory result, because it tallies with the literary records of that Emperor's reign, and does away with the necessity, felt by some scholars in recent years, to suppose that the tradition of his activity on the Wall was unfounded. But this

involves a new date for the end of the first period. We can no longer be content to ascribe the great destruction to the reign of Commodus. We seem almost compelled to connect it with the occasion, during the usurpation of Clodius Albinus, when the Maeatae broke into the now undefended province and had ultimately to be bought off by the legate of Severus. This new reading of the evidence has yet to be confirmed by a thorough reconsideration of all the facts in our possession ; but it is now perhaps not too early to say that it seems to promise a solution of many old difficulties.

Hardly less important is the fact that we can now definitely ascribe the beginning of the third period to Diocletian and his colleagues, in particular to Constantius Chlorus. The end of the second period seems therefore to demand a date some years later than 270.

Both inscriptions were found used as paving-stones in a floor underneath which the latest object found was a coin of Valentinian I. This floor, therefore, was laid when the fort was repaired after the great war of 368. The occupation-debris on the floor is thus dated to the last, or, as we may call it, the Theodosian, period of the Wall's history. Beneath it there emerged three sealed levels containing rich deposits of pottery which, when properly analysed and published in connexion with the epigraphic evidence for the date of the deposits, will tell us more than we have hitherto known about the dating of pottery in this part of Britain, and react on the interpretation of past discoveries and the course of future research. [R. G. COLLINGWOOD].

The text of the inscriptions, so far as it is certainly legible, is as follows. No attempt to fill gaps or indicate ligatures is made.

1. Found face upwards, much worn, used as Theodosian floor-slab.

IMPP · CAESS · L ·
SEPT · SEVERO PIO
PERT · ET · M · AVR ANTO
NINO AVGG · ////////////
//////////////////////R/
/////// · REST · COH · I · AEL
DAC · ET · ////////////SVB
ALFENO · SENECIONI · COS
PER · AVREL · IVLIANVM · TR

Date, 204–8. Geta's name and title are erased ; the name of the building restored is uncertain ; so is that of the second corps concerned

in the work : Alfenus Senecio, Governor of Britain, 204–8, was active also at Risingham, Bowes, Greta Bridge, and Bainbridge. Aurelius Iulianus buried an infant child at Birdoswald. The carver corrected AVL to AVREL. Expanded reading :—Imperatoribus Caesaribus Lucio Septimio Severo Pio Pertinaci et Marco Aurelio Antonino Augustis et Publio Septimio Getae, Nobilissimo Caesari, ! ! ! ! ! restituerunt cohors prima Aelia Dacorum et ! ! ! ! ! ! ! sub Alfeno Senecioni Consulari, per Aurelium Iulianum, Tribunum.

2. Found (plate III) side by side with (1), with face (much weathered) turned down.

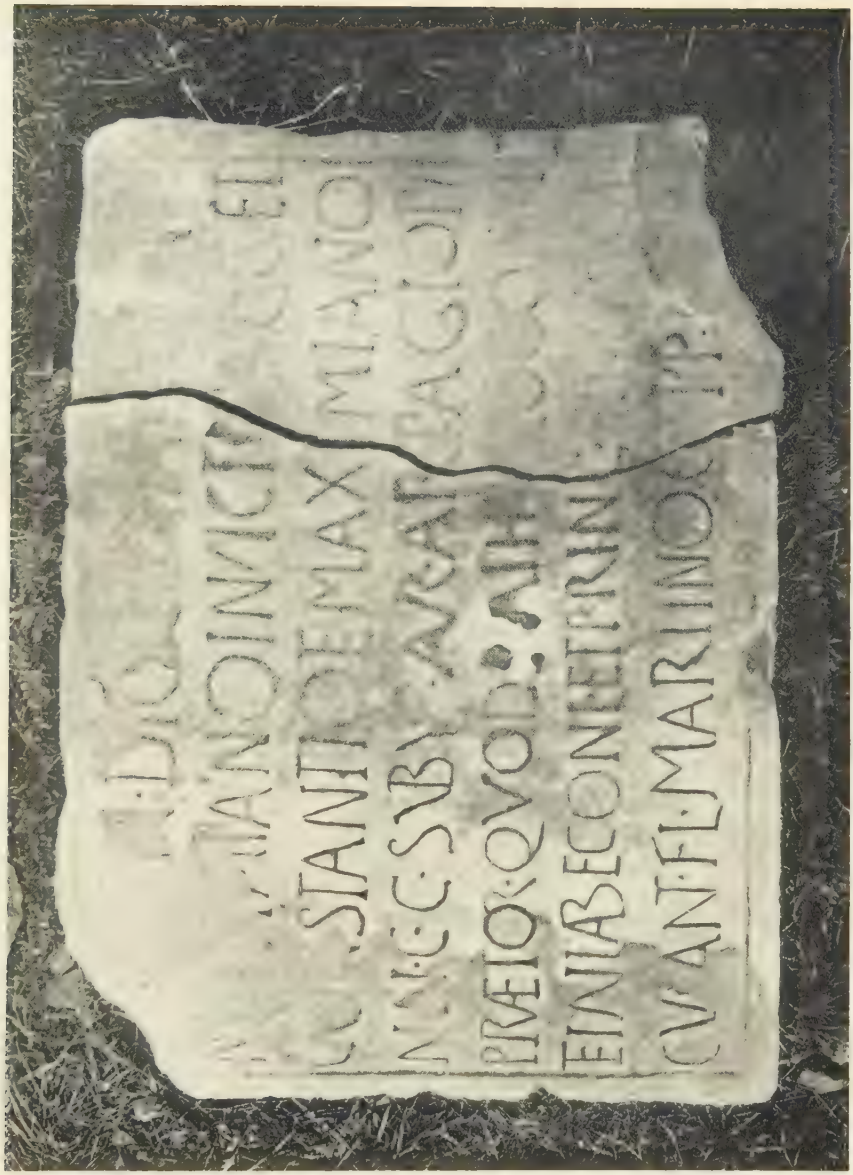
D·D·N·N·DIOCLETIANO ET
MAXIMIANO INVICTIS AVGG ET
CONSTANTIO ET MAXIMIANO
N·N·C·C·SVB V P·AVR·ARPAGIO PR
PRAETOR · QVOD ERAT HVMO COPERT
ET IN LABE CONL·ET PRINC · ET BAL · REST·
CVRANT · FL · MARTINO · CENT · PP · C ! ! ! ! !

Date, 297 (summer)—305 (May). Aurelius Arpagius is a new Governor. The *praetorium* had evidently been left ruined for some time : and it is clearly distinguished from *principia*. CENT = *centurione* rather than *centenario*, which seems definitely post-Diocletianic. Martinus was a legionary N.C.O., in temporary command of the Fort's auxiliary cohort, whose name is missing.

Expanded reading :—Dominis Nostris Diocletiano et Maximiano Invictis Augustis, et Constantio et Maximiano Nobilissimis Caesaribus, sub Viro Perfectissimo Aurelio Arpagio Praeside, praetorium quod erat humo copertum et in labe conlapsum et principia et bal (? ? ?) restituta (sunt), curante Flavio Martino, Centurione, Praeposito Cohortis ! ! ! ! ! . I. A. RICHMOND.

A DATABLE FLINT TOOL

We have no intention of wearying our readers, in the continental style, with ' flints '. The one here illustrated, however, is of exceptional interest because it belongs to a type whose age and purpose are both known. It occurs in Egypt, where we came across it in 1928, when we were being conducted over the excavations at Saqqara by Mr C. M. FIRTH, the Chief Inspector in the Department of Antiquities in Egypt. We were allowed to keep a specimen for which the accompanying

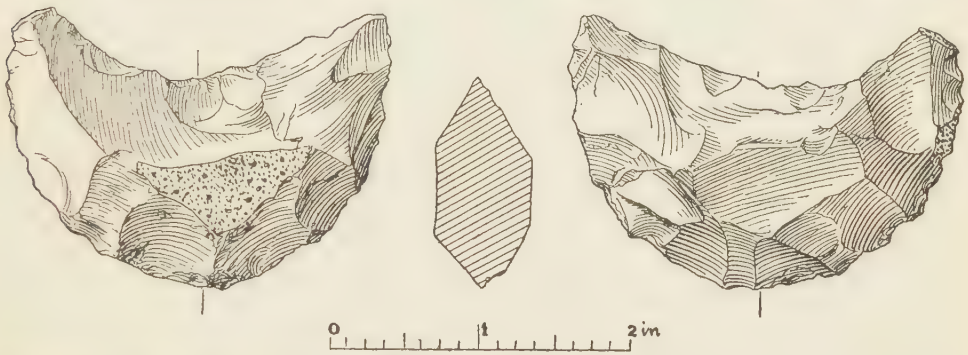


INSCRIPTION OF CONSTANTIUS CHLORUS FROM BIRDOSWALD

facing p. 104

illustration has been made. Mr Firth has kindly put in writing his account of its use, as follows:—

'The crescent-shaped flint is of the third dynasty [*c.* 2900 B.C.] and was used for cutting limestone. The specimen you have is from the Step Pyramid at Saqqara. To save work with their copper chisels the Egyptians drilled a sort of honeycomb of holes on the surface of the block which they wanted to shape—knocked down the partitions between these holes and then trimmed the surface down with copper chisels. The flint boring-head must have been mounted on a wooden spindle with weights at the upper end below the handle used to revolve it. The apparatus is shown in two Egyptian hieroglyphics, one having a cap or weight instead of the sand bags. It is the sign used to spell "hmt"=craftmanship. These flint borers were formerly called



amulets from their horned shape. Their real use was discovered by my daughter. They are common in third dynasty sites and they are illustrated in the plates of Garstang's *Mahasna and Beit Khallat*, from the neighbourhood of the Mastabas of Sa Nekht and Neterkhet of this period. Curiously enough I never saw one on a classical old Kingdom site such as Giza or Abusir; it looks therefore as if these flints were a survival from the technique of stone vase drilling applied to the cutting of building stone, but abandoned in favour, perhaps, of sawing or the more extended use of heavy copper cutting tools'.

THE MOSAICS OF THE GREAT MOSQUE AT DAMASCUS

We are indebted to M. CONTENAU (of the Louvre) for the following account, which the Editor has translated, and to M. Eustache de Lorey for the illustrations which accompany it:—

When the Arab historian Mokaddasi visited Damascus in A.D. 985,

he admired its mosque which, he said ' is the finest thing the Musulmans possess in our times . . . In those parts which are ornamented with mosaics there are represented trees, capitals and inscriptions of the greatest beauty and delicacy, most skilfully executed. There is hardly any tree or town known which is not figured on the walls '.

After the capture of Damascus by the Musulmans (A.D. 635) the mosque (formerly a church dedicated to St. John the Baptist) was decorated with mosaics by the Sultan Walid I (A.D. 705–715). Numerous restorations took place in subsequent periods ; in the 13th century, by Sultan Beybars (of whom an inscription has recently been found in letters of gold on a black ground) ; and in the 14th century by the Emir Tenkiz, who ruled Damascus. Then came the wave of Musulman puritanism, which carried out its appointed task, so that that which once has been the city's chief glory was alienated. Finally the mosque was destroyed by fire in 1893, and the whitewash with which the whole of the courtyard walls was covered made it impossible to know what the fire had spared, or even if it had spared anything at all.

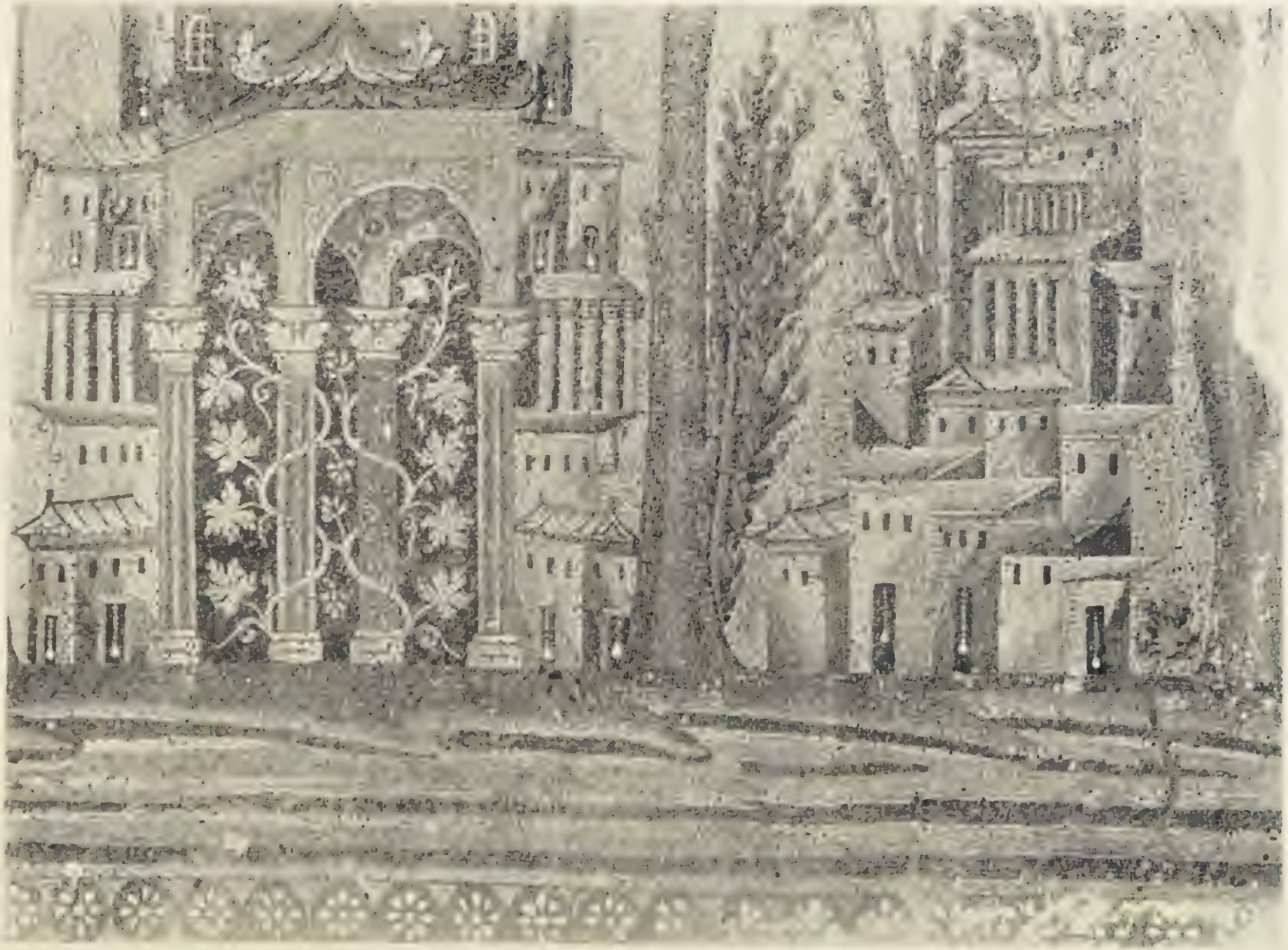
Nevertheless, at certain points of the great court in front of the mosque itself, the accidental removal of a few flakes of plaster from the walls gave grounds for hoping that the sumptuous decoration of the Caliphs was not completely lost. M. Eustache de Lorey, after his appointment as Director of the French Institute of Archaeology and Moslem Art at Damascus, divined what treasures the whitewash might conceal, and exerted himself to obtain authority from the Wakf administration to carry out the necessary work. In September 1929 the results of his investigations were exhibited at the Museum of Decorative Arts in Paris in the form of photographs and tesserae ; for, as the photograph of the court shows, everything had not been destroyed. The mosaics were distributed along the arcades and more particularly along the wall of the cloister within ; they have been rescued and drawn by M. Cavro, architect of the French Institute at Damascus, and by his pupils.

The decoration, of which specimens are given (plates IV–V), is of quite an unexpected character. First, one should observe the perfect harmony between the subject and the place assigned to it in the scheme. Above the columns, at the spring of the arches, trees spread their foliage ; over the centre of the arches the branches interlace with horns of plenty ; finally on the walls themselves are huge compositions, one of the panels newly revealed being no less than 35 metres long.

What is so remarkable, moreover, about these mosaics is their

WESTERN PORTICO OF THE GREAT MOSQUE AT DAMASCUS
Ph. M. Eustarche de Lorey

facing p. 106



MOSAICS IN THE GREAT MOSQUE AT DAMASCUS

Ph. M. Eustache de Lorey

naturalism and the freedom of their execution. The interlacing ornament of the arches is hardly at all conventionalized and the landscape is naturalistically represented. Although there is nowhere any living being, animal or human, the scenes represented are full of life and in excellent taste. The trees are very well designed ; the foliage spreads out in no stereotyped fashion, but naturally and as it is affected by the wind. The houses are to some extent modelled on the lines of the wealthy villas imposed upon artists by the classical tradition ; but we see also fancy summer houses such as the rich Damascenes might have built to spend the heat of the day within. Running through all is a touch of pure imagination, as in the leaf-like roofs, and some which resemble inverted flowers ; or in the accumulation of material, the profusion of colonnaded kiosks and fragile buildings intermingled and piled one above the other regardless of perspective. The whole assemblage is stamped with its own date. By comparison, it falls well before the important repairs carried out on the Jerusalem mosaics ; it found its inspiration in works like those at Ravenna and those of the church of St. George at Salonica, which date from the 5th century. We must therefore place the Damascus mosaics early in the 8th century ; and we may well compare them, on the one hand with what remains of the older Jerusalem mosaics, which are almost contemporary, and on the other with that portion of these mosaics which was renovated in the 10th and 11th centuries and which is much more conventionalized.

Another influence to be observed in the Damascus decoration is that, remote but perceptible, of the Alexandrian landscapes and the Alexandrian technique. This feature derives fresh interest from the recent discovery at Jerash, in Transjordan, of mosaics representing storied groups of buildings, attached to which occur the names Memphis and Alexandria, suggesting that the artists were Alexandrians (see ANTIQUITY, December 1929, III, 478–80, plates 3 and 4, and colour reproductions in the *Illustrated London News*, 23 November 1929). This representation of individual towns agrees well with the passage in Mokaddasi quoted above.

But it seems, nevertheless, that the artists also derived their inspiration from what they could see around them. Along the bottom in front of every scene flows a slightly torrential stream like that which still gives its charm to Damascus and whose crisp and foaming wavelets are plainly represented.

It should be added that these mosaics are made of cubes of clear glass of bold colouring ; cubes of pink or grey marble are in a minority.

The background is of gold, and the artists have varied their shades of colour in a way to delight the modernists. Shadows are mauve or light pink, and on certain trees, whose trunk struck by a ray of light is marked by a bar of gold, one notes an admirable gradation of shading in the foliage ; it passes from dark green to light, then to a delicate blue ; whilst in places patches of shadow enliven the other colours by contrast.

The revelation of these mosaics must certainly be counted among the most remarkable events in the history of Musulman art. One can now see how rich were its beginnings, and that it could at least rival anything that had ever preceded it.

[The Damascus mosaics would therefore appear to have been made during the reign of Walid I, who was also responsible for the frescoes at Quseir 'Amra in Transjordan. These have hitherto been regarded as the earliest surviving relics of Musulman art. For a full account of them, with lavish illustrations, see A. Musil, *Quseir 'Amra*, K. Akad. d. Wiss. (Vienna 1907), I, 3–186 ; Jaussen and Savignac, *Mission Archéologique en Arabie*, vol. III, 1922. M. Contenau also contributed a description of the Damascus mosaics to the *Mercure de France*, 1 October 1929, pp. 182–7.—EDITOR].

AN AMUSING HOAX

Last October the *Dundee Courier* published the first news of an ' important discovery at Glamis ' purporting to be a ' Runic record of a 7th century battle '. It was carved on a flat stone dug up in a garden in the village of Charleston, and a photograph of it was submitted to Lt.-Colonel L. A. Waddell, the author of various books which have not been reviewed in ANTIQUITY. ' The first glance showed ', he says, ' that it was an inscription in the old Runic writing, and the record disclosed that it was written, not in Scandinavian, like so many of the Runic inscriptions hitherto found in Britain, but in the British language, and chronicled a battle on the spot '. The date assigned was the 7th century. Colonel Waddell transliterated the inscription as follows :— STALE : KISTS : KAULT : HERE : JARLS : ALSA : J : LITTLE : TA : THE : LA : TWA : AH : (I : M :) ; and his translation was :—' The army cists [stone coffins] (of the) killed here ; of Earl Alsa (and) Earl Little. This is the lair (tomb) of the twain. Ah ! (Alas !). (I : made [this]) '.

Mindful of Glozel we sent the cutting to Professor R. A. S Macalister, who occupies the Chair of Celtic Philology in the University of Dublin. His transcription was as follows :—STONE KISTS FOUND

HERE AS ALSO A LITTLE TO THE NORTH. I.M. A precisely similar transcription reached us at the same time and independently from a correspondent in Scotland, with some amusing comments on the inaccuracies of the one first published and of the deductions drawn from it. It is plain that it belongs to the same class as another which acquired a brief celebrity—THISIS FORC ATTLETO RUBON THE YAREAS SESASSAY ITAINT ; and the rock-inscription of Barnspike in Cumberland, which is solemnly discussed in Stephens' *Northern Runic Monuments*, pt. 2, pp. 648–54, but which is now known to have been a practical joke—as indeed the shape of the letters might have shown (see W. G. Collingwood's *Northumbrian Crosses of the pre-Norman Age*, 1927, p. 66).

The Glamis inscription was evidently the work of an antiquary, and there are reasons to suspect a certain individual who died towards the end of the last century. The initials I.M. (or J.M.?) would probably suffice for his identification if anyone should think it worth while to follow up the matter—which we do not! We publish these facts because they were suppressed by the Editor of the *Dundee Courier*.

THE EXCAVATIONS AT WARKA (MESOPOTAMIA)

Dr JULIUS JORDAN sends the following report* on the excavations at Warka, which were resumed last October :—

In 1912 the Deutschen Orient-Gesellschaft began excavations at Warka in southern Iraq, the city known to the Sumerians as Uruk, the cult-place of Innini and Anu. The scene of the Gilgamesh epic was laid here, and it was the Erech of Nimrod and the Orchoe of Hellenistic times. The work was resumed in the winter of 1928-9, in co-operation with the Notgemeinschaft der Deutschen Wissenschaft. As far back as 1854 W. K. Loftus had drawn attention to these ruins, the most considerable in south Babylonia, and from his partial excavation it was obvious that the site was one of great importance from the earliest Sumerian times to those of the Seleucids. The Deutschen Orient-Gesellschaft had uncovered the great sanctuary Bît rêš, together with the temple of Anu and Antum, dating from the time of the revival of Babylonian culture under the Seleucids. The site of a palace of king Singashid, belonging to the early part of the second millennium, was also located and investigations were begun on the Eanna temple of Ishtar, and on the city walls, with valuable results in the form of inscriptions and small finds.

* Translated by ROLAND G. AUSTIN, Glasgow University.

Last winter a beginning was made with the systematic excavation of the Eanna temple of Innini-Ishtar, with such success that before the season ended the circuit of the temple enclosure, dating from the time of the Assyrian king Sargon II, was exposed, as well as the temple-tower (ziggurat) belonging to the 23rd century B.C., and a sanctuary on one side of it. Above the Assyrian stratum of the enclosure were found a few traces of the temple-buildings of the late Babylonian kings Nebukadnezar and Nabonidus, and also of the Achaemenid Cyrus II. Beyond the temple circuit of Sargon was a small sanctuary dedicated to Innini, belonging to the time of the middle Kassite ruler Karaindash. Traces of a bas-relief were apparent on the bricks taken from the ruins of this little temple, of which but scanty remnants have been preserved. We have succeeded in piecing together these bricks to form part of a frieze, running round the base of the building, consisting of male and female genii some 1.40 metres high, set in perpendicular grooves. The figures hold flasks in their hands, from which streams of water spring to either side, running down along the wall to right and left. One may suppose that Kassite influence is responsible for this method of ornamentation, hitherto unknown in Sumer and Akkad, but which 300 years later appears again in an Elamite sanctuary at Susa.

As would be expected from the antiquity and importance of the Eanna temple, which was used for two thousand years as the cult-place of the goddesses Innini–Ishtar and Nana, the numerous small finds belong to various periods. As belonging to the third millennium I may mention here the throne of a seated figure in diorite; a lime-stone stele with a bas-relief; several little effigies of animals; stone vessels decorated with reliefs; a small head in limestone of a Sumerian priest; a terra-cotta head of a cult-figure, probably Kassite; a record of enfeoffment with astral symbols and an inscription of the later Kassite period; besides a large number of clay figures together with building-inscriptions on bricks, clay cones, cylinders and nails from the time of Enannatum to Cyrus. In the uppermost stratum were found thousands of clay tablets, of the period from Nabopolassar to Cambyses; the majority were mathematical or astronomical in character, or business documents and letters; there is also among them a fragment of the Gilgamesh and Creation epics.

The preliminary report on the results will appear in the Berlin *Abhandlungen der Preussischen Akademie der Wissenchaften.*

The following additional note has been received from Dr Julius Jordan, in a letter dated 22 December 1929 :—This season's work has given us a glimpse for the first time of the oldest archaic strata of Uruk. Further, within the limits of the Eanna temple, on the southeast side of the ziggurat, there have been found the remains of buildings which belong to at least three distinct periods, all of them earlier than the Third Dynasty of Ur. Several more connected portions have been found of the well-known wall-mosaic† uncovered by Loftus 75 years ago ; but what is of the greatest significance is that it can be proved by the evidence of clay tablets that these mosaics, with their beautiful coloured geometric designs, belong to the earliest period, probably one ante-dating the 1st dynasty of Ur. By this discovery our knowledge of the *oldest* art of the Early Sumerians, hitherto derived from the rich grave-finds of Ur, is considerably widened. We know now more also about the decoration of the temple buildings ; and our admiration for the achievements of these remote ages is increased still more.

THE BRUNTON EXPEDITION

It was with very great pleasure that we read in *The Times* of 13 January an announcement that Mr John A. Roebling of New Jersey, U.S.A., had given £1,000 to the Trustees of the British Museum as a contribution to the expenses of the Brunton Expedition. Our readers will remember that an article by Mr Guy Brunton appeared in our last number, together with an appeal for funds which was referred to in an editorial note. It is therefore with equal pleasure that we have received, as we go to press, a letter from Mr Roebling himself, informing us that it was the editorial note in ANTIQUITY which led him to contribute to the Fund. We are glad to have been the means of obtaining such generous support for Mr Brunton's work and we hope that it may be an incentive to others to send donations to the Trustees for the same purpose.

† Made of painted cone heads and cone-shaped pots.

Recent Events

The Editor is not always able to verify information taken from the daily press and other sources and cannot therefore assume responsibility for it.

The following extract from a letter (dated 14 October 1929) will be of interest to readers of the paper by Group-Captain Rees in our last number. It is printed here with the permission of the writer (Air Vice-Marshal Sir ROBERT BROOKE-POPHAM, C.M.G., D.S.O., commanding the R.A.F. in Iraq) :—

' I flew to Damascus and back last week, and about 50 miles east of Damascus, just clear of the northern edge of the Lava area, I saw a few kites exactly similar to those in the Azrak district, though my impression was that the enclosures were bigger. In one of these kites I saw camels. I made enquiries about them in Damascus, and eventually found one French officer who told me that they were used by the local Bedouins for rounding up gazelle, and that in each round up they expect to get about half a dozen'! Further inquiries were set on foot and we look forward to hearing more about this baffling problem.

A correspondent writes from Taiping, Federated Malay States :—

' With reference to the paper by Mr F. G. Roe (III, 299–311) entitled 'The "Wild Animal Path" origin of Ancient Roads ', the following recommendations for travelling in unknown hill country in the Malay Peninsula may be of interest. " When going from known point to known point through the jungle, and using the compass, try to find a hill-range leading in the desired direction. This will almost certainly have a more or less open game track, old or still-frequented, along its top; and the use of this will facilitate travelling very greatly " '.

With reference to the Cerne Giant, Dr CYRIL FOX communicates an interesting and (we believe) hitherto unrecorded custom. It is given on the authority of an old inhabitant who ' told me that when he was a boy, the boys of the village used to go and play tip-cat on

Good Fridays, on the level ribbon of ground below the Giant; this was the only day of the year on which it was done. I went to look at the site; it is a narrow, artificially flattened area at the foot of the slope near (above) the hedge bounding the Down, below the Giant; that is on the west side of the Chalk Pit lane. I was also told that the inner enclosure of the Trendle, which is as you will remember a small and well-defined bank, was the base of a thorn-hedge, planted originally round a small group of fir-trees about 100 years ago. (This from the oldest inhabitant, transmitted by the Rector). The story has this to commend it—that there are two little thorns still surviving on the bank; moreover the inner bank is obviously later than the outer one'. There is no indication of this hedge and the fir-clump on the oldest Ordnance Maps, but this does not prove that they were not there at some time or other. We are strongly inclined to accept the proposed explanation, which fits the facts perfectly.

Mr R. G. COLLINGWOOD writes :—

'In a footnote to an article in ANTIQUITY (III, 264) last September, discussing the Early Iron Age distribution of population, I quoted Professor Rishbeth's views as expressed in *Great Britain* (Cambridge, 1928). After saying that he thought the chalk uplands of south central England must have been originally occupied by forest, I went on, " but (he) quite fails to show why, if that is so, these lands were so emphatically chosen as a residence by primitive agricultural man ". Professor Rishbeth has most kindly, and in an altogether friendly way, pointed out to me that I was wrong about this; he had, in fact, referred to " the virtual impossibility of settlement in low lying parts " (*op. cit.*, p. 75) and further suggested that the upland forest, being drier, freer of undergrowth, and easier to clear, had been "tenanted at first by hunters and then by hunter-pastoralists ", before agriculture arose on the now partially cleared land. Professor Rishbeth does not suggest that I should do public penance for misrepresenting him, but obviously I owe an apology to the readers of ANTIQUITY, in addition to that which I have already offered personally to himself'.

Rumour has it that the draining of Lake Nemi is to be discontinued, and that the results hitherto obtained are regarded as disappointing and out of all proportion to the labour involved. In one sense we are inclined to agree, to judge from the latest report kindly sent to us by

a correspondent in Italy (*Rivista Illustrata del Popolo d'Italia*, October 1929). Three fine bronze animal-heads and a wooden hulk seem a poor return for so much expenditure. But it all depends upon what you want. If it is the advancement of knowledge, then technical skill would be more profitably employed sinking a shaft in, say, the Nile Delta or the Dogger Bank, or making an air-survey of Mesopotamia and the Syrian Desert.

Excavations at Herculaneum are revealing houses with frescoes. (*The Times*, 9 December, p. 11).

Dr Ugolini, the Head of the Italian Mission in Albania, has been continuing his work at Butrinto. He has discovered some Greek inscriptions of considerable interest and a large marble statue which he regards as the work of Praxiteles. (*The Times*, 7 December, p. 11 and illustrations on p. 16).

A Thracian tomb of about 500 B.C. has been found at Douvanli, in the district of Plovdir (Philippopolis). It contained ' silver, bronze and earthenware vases, and a gold diadem '. (*The Times*, 1 November).

Professor Gordon Childe is on the track of the elusive Picts, and we understand that he hopes before long to publish his ideas about them in full. A report of a recent lecture contains many suggestive remarks. (*The Scotsman*, 25 November).

The Royal College of Surgeons has the human remains from Ur, from the Shukbah cave near Mount Ephraim, and from East Africa, to examine. The results should be highly interesting to anthropologists, if the material is at all well preserved. (*East Anglian Daily Times*, 25 November).

The *Manchester Guardian* (13 November) publishes a long letter from Sir Arthur Evans on the discovery by Professor Persson of a 13th century inscription on the mainland of Greece. Sir Arthur criticizes the interpretation of the Swedish professor, as reported in the press.

At the annual meeting of the British School of Athens held 5 November Sir Rennell Rodd outlined a scheme for the complete archaeological exploration of Ithaca (*The Times*, 6 November, p. 9) and in the issue for 14 November (p. 10) he addressed an appeal to the public to carry the project into effect.

The fund has the hearty co-operation of the Mayor and inhabitants of Ithaca. The undertaking deserves the support of all classical students and we wish it every success. Sir Rennell Rodd asks for subscriptions to be addressed to him at 39 Bryanston Square, London, W.1.

The British Museum has received the seven sculptured stones found recently in British Honduras. The larger ones are equal in size to some of the smaller monoliths at Stonehenge. The hieroglyphic inscriptions are expected to add to our knowledge of the Maya civilization. (*Morning Post*, 5 December, p. 5).

Sir Arthur Keith has reviewed the evidence for Early Man in China, most of which has been found by Dr Davidson Black of the Peking Medical College (*The Lancet*, 28 September, summarized in *Nature*, 19 October). Since then the announcement of the skull found on 2 December has been reported in the *Daily Telegraph*, 16 December, p. 11. The details have been communicated to the Geological Society of China (*The Times*, 30 December, p. 9).

The Roman fort of Housesteads, Northumberland, known in Roman times as Borcovicus, or (better) Borcovicium, situated on Hadrian's Wall, some 10 miles from Hexham, has been presented to the National Trust by Mr J. M. Clayton, who has thus ensured the preservation of one of the few remaining examples of Roman fortification in England. (*The Times*, 3 January, p. 7).

The work for the new season at Ur is outlined by Mr C. Leonard Woolley in a communication to *The Times*, 7 January, p. 13. It is proposed to investigate the city which existed before the Flood.

A fine pile-village has been revealed on the shores of Lake Ledro (province of Trent, Italy) by the lowering of the lake for industrial

purposes. Excavations are being carried out, and the finds deposited in the Trent Museum (*The Times*, 24 October, p. 15).

A cave at Covesea in Morayshire is yielding important results in the form of stratified remains of the Bronze and Iron Ages. Over 150 bronze Roman coins have been found by Miss Sylvia Benton, who is conducting the excavations. (*Scotsman*, 15 October).

A dolmen has been discovered in the forest of Isle-Adam on the Oise near Paris. It yielded 'a large quantity of human bones, weapons of polished stone (presumably axes), fine axes with handles (or "gaines"?) of stag's horn and potsherds'. (*Paris-Midi*, 30 September).

Colonel Lindbergh is taking air-photographs of the ruined Maya cities of Central America. The first publication of these has, we need hardly say, already been arranged for. We are in hopes of obtaining some for ANTIQUITY when the promoters of the venture have been appeased.

The Sphere (10 August) contains some photographs of the ruined palace of Ukhaidir in Mesopotamia. This, as we remarked in our last number, was virtually discovered by Miss Gertrude Bell, whose fine account of it was published by the Oxford University Press in 1914.

Apropos of desiccation, *The Times* publishes an interesting letter from Mr Henry Field, of the Field Museum, Chicago. His general thesis is roughly the same as that put forward, quite tentatively, by the Editor of ANTIQUITY some years ago in the *American Geographical Review* (January 1926, vol. XVI) though even then it was probably not original or entirely new. There are admittedly many difficulties in the hypothesis ; but it is generally admitted that Arabia and the Syrian desert was a fertile region in late palaeolithic times, and eminently suited to support a nomadic hunting population. That it is now much less fertile is also admitted. Both Mr Field and the present writer have found abundant evidence of palaeolithic man in the Syrian desert ; and it is natural to suppose that, at the onset of desiccation, the nomads may have settled in the well-watered lands of the 'fertile crescent' surrounding them.

NOTES AND NEWS

The excavation of Roman Alchester was continued for five weeks during July and August 1929. The region worked over was that adjoining the site of the 1928 operations to the south, *i.e.*, along and just within the eastern defences, south of the northeast corner. A section of the east stone wall of the town was laid bare—the most considerable yet uncovered. This wall, it can be now definitely stated, was about 9 feet thick, of rubble faced with roughly squared stones, and ran slightly behind the line of the 1st century earth rampart. No absolutely indisputable evidence of its date is yet to hand, but the indications are that it was built sometime during the 2nd century, either to replace or to strengthen the earth rampart. Its line from the northeast corner to the east gate is now completely established.

Just within the town wall section above mentioned a further portion of the House of 1928 was cleared, extending to the south. No walls were found, but a large area of the same mortar and stone floor, covered with the debris of the collapsed building. The dating—early 2nd century—arrived at in 1928 was confirmed.

Professor V. Gordon Childe writes :—

'Vinča, a prehistoric station near Belgrade, has long been recognized (*vide* Antiquity, 1, 82) as a key site in North Balkan archaeology, both because its 10 metres of stratified deposit provide a unique sequence of cultures and because its relics exhibit similarities to those found both farther up the Danube and in the Aegean region. Prof. M. M. Vassits, the original discoverer of the site, last year resumed work upon it with the aid of Sir Charles Hyde, uncovering the so-called middle strata over a large area. The results are described in the *Birmingham Post*, 27–28 November 1929. They confirm previous deductions from the stratigraphy of the site and not only afford fresh links with the Aegean area but give a clue to the date of the true painted pottery of Serbia. Evidence for cinnabar mining in the vicinity was also obtained. The excavations are to be continued next June, when the lower strata will be explored'.

CORRIGENDA

The following corrections should be made in the paper in the December number of Antiquity by Professor Oscar Reuther on the German excavations at Ctesiphon :—

page 436, line 1, *for* photographed *read* surveyed
„ 441 „ 13 „ after photographs had been taken *read* after measurements and drawings had been made
„ 445 „ 34 „ gypsum *read* plaster
„ 449 „ 18 *read* probably roofed in
„ 20 *for* 9-metre span *read* 11-metre span

Some Recent Articles

This list is not exhaustive but may be found convenient as a record of papers on subjects which are within the scope of ANTIQUITY. *Books are occasionally included.*

Mycenaean Plumes, by Leicester B. Holland. *Amer. Jour. of Arch.* XXXIII, 173–205.

The Achaeans, by William K. Prentice. Ib. id. pp. 206–18.

[*The following are selected from a list published in* THE AMERICAN JOURNAL OF ARCHAEOLOGY, XXXIII, 220–264, *where short summaries are given. The titles given here are descriptive only*].

Primitive Art on the Edge of the Gobi Desert, by Volodimir Riznichenko. *Antropologiya*, 1927, pp. 119–134.

Rock-carvings of deer, bear, horses, dogs, etc., in the district of Zaysan, in the land of the Kirghiz. ' There are some hunting-scenes, but in general human beings are not as well represented as animals . . . The designs seem to agree with those of Aurignac and Solutré except for the representation of the dog'. Modern fauna only ; no extinct species.

Hallstatt Tumuli, by Maurice Piroutet. *Rev. Arch.* (1928), XXVIII, 220–281, 28 figs.

Deals with those in Franche-Comté and the jurassic plateau of Eastern France.

Neolithic graves at Méry (Seine-et-Oise), by B. Bottet. *Rev. Arch.* (1928), XXVIII, 14, 15, fig.

'The objects found comprise three stone axes, a sheath of deer-horn, a tomahawk of the same material, a flint spear-head, and a shell with two holes for suspension '.

Banded Pottery (Band-keramik) in the Danubian Culture, by Wilhelm A. Jenny. *Mitt. Anthr. Ges.* LVIII, 21–103, 10 plates and 13 figs.

The Roman Defences of the Lower Danube, by Georges Cantacuzène. *Aegyptus* (1928), IX. [Summary in *Rev. Arch.* (1928), XXVIII, p. 144].

A Pannonian Factory of *Terra Sigillata*, by Lajos Nagy. *Archaeologiai Ertesito* (1928) XLII, 96–113.

The Rôle of the Ural-Altaic Peoples in World History, by Oswald Menghin. *Archaeologiai Ertesito* (1928), XLII, 223–238.

Extra-Continental relations of the American Indians, by J. Imbelloni. *Mitt. Anthr. Ges.* LVIII, 301–331.

Cultural connexions between New Zealand, Polynesia and South America suggested by resemblances of objects, functions and language.

Les lieux-dits du département de Maine-et-Loire dans leur rapports avec la Préhistoire, by O. Desmazières. *Bull. de la Soc. préh. franç.* (May 1929), XXVI, 294–298.

An interesting collection of place-names, particularly those relating to megaliths, with some notes on the use in France of the word 'folie, foliette', corresponding to our 'Folly'. 'Paradise' is explained as a hollow way between two live hedges.

Station Aurignacienne du Champ de Bagasse à Nag-Hamadi (Upper Egypt), by Ed. Vignard. *Bull. de la Soc. préh. franç.* (May 1929), XXVI, 299–306.

[The section illustrated on p. 299 being wrong, another was distributed with the next issue of the *Bulletin*, for substitution].

Une Sepulture de l'Age du Bronze à Courtavant (Aube), by M. G. Lapierre. *Bull. de la Soc. préh. franç.* (May 1929), XXVI, 307–9.

A fresh discovery at this important site, which should be photographed from the air and systematically excavated.

Museums, Libraries and Local History, by William Pollitt, F.S.A. Reprinted for private circulation from *The Library Association Record*, 1929.

The Galleys of Caligula, by Albert Buhrer. *Nineteenth Century*, August 1929, pp. 222–9.

An account of efforts made to raise the galleys from the first attempt in 1446.

The Early Iron Age in England and Wales, by Cyril Fox. *Proc. Camb. Ant. Soc.* (1929), XXX, 52–3.

A brief summary of what must have been a most interesting paper.

Excavations in the Cambridgeshire Dykes. VI. Bran Ditch, Second Report, by T. C. Lethbridge and W. M. Palmer. *Proc. Camb. Ant. Soc.* (1929), XXX, 78–96.

A most valuable report. The discovery of a Saxon cemetery associated with and *earlier than* the rampart of Bran Ditch has proved the earthwork to have been constructed during the Saxon period.

Die Wälle in Bessarabien, besonders die sogenannten Traianswälle ; ein historisch-geographischer versuch, by Dr C. Uhlig, Professor of Geography in Tübingen. *Praehistorische Zeitschrift* (1928), XIX, 185–250.

This little monograph, complete with sketch-maps, bibliography (including maps) and index, is a model of research. The walls are *ideal* subjects for air-photography. If the Roumanian government is unable to undertake the work, will not some private individual get up an expedition for the purpose ?

La Station paléolithique du Mont Dol, by A. Vayson de Pradenne. *L'Anthropologie* (1929), XXXIX, 1–42, 12 plates.

A clearly written and masterly account of a Mousterian site between St. Malo and Mont St. Michel. The importance of the site lies in the evidence it provides for the level of the sea during Mousterian times. M. Vayson sets down the facts and draws conclusions of general import from them ; and criticizes the too-simple system of M. Déperet (C. R. des séances de l'Academie des Sciences, 25 March 1918 to 19 June 1922).

Notes sur l'industrie lithique de Kish, Iraq, par L. Ch. Watelin, Directeur des fouilles. *L'Anthropologie* (1929), XXXIX, 65–76.

Les forêts et le peuplement de la Gaule, par MM. Lantier et Hubert. *L'Anthropologie* (1929), XXXIX, 132–4.

A note by M. Lantier on an unfinished article by M. Hubert.

L'ancienneté de l'exploitation de l'étain dans le nord-ouest de l'Espagne. *L'Anthropologie* (1929), XXXIX, pp. 134–6.

Pithecanthropus Erectus, by H. Weinert. *Zeitschrift für Anatomie und Entwicklungsgeschichte* (1928), LXXXVII, 429–547, 34 figures.

A valuable monograph incorporating new evidence. Reviewed by R. Vaufrey in *L'Anthropologie* (1929), XXXIX, 143–6.

Studies on the growth of Gorilla and of other higher primates, with special reference to a foetus of Gorilla preserved in the Carnegie Museum, by A. H. Schultz. *Mem. Carnegie Museum*, 1927, vol. 2.

The author concludes that the Gorilla is more nearly related to man than the Chimpanzee, the Orang and the Baboon, which he places in that order of consanguinity.

Palaeolithic fishing-tackle, by Albert Wade. *Salmon and Trout Magazine*, April 1929. Translated from a paper by Dr René de Saint Périer. *L'Anthropologie* (1928), XXXVIII, 17–22.

Another link with the Esquimaux.

La Palmyrène et l'exploration de M. Alois Musil, by René Dussaud. *Syria* (1929), X, 52–62.

Consists mainly of a learned and valuable dissertation by M. Dussaud on the Roman roads and named places in the triangle Aleppo—Homs—Damascus—Palmyra—Deir-ez-zor—Euphrates, with a map of them.

Offa's Dyke : a field Survey. Fourth Report ; Offa's Dyke in Montgomeryshire. By Cyril Fox. *Archaeologia Cambrensis* (June 1929), LXXIV, 1–60.

A detailed and fully illustrated description of this section. For a general account of Offa's and other dykes see Dr Fox's paper in ANTIQUITY (June 1929), III, 135–54, 16 figs.

The Science of Man in the service of the State, by J. L. Myres. *Journ. R. Anthr. Inst.* (1929), LIX, 19–52.

Among some unknown tribes of South Arabia, by Bertram Thomas. *Journ. R. Anthr. Inst.* (1929), LIX, 97–111.

A short and rather confused, but first-hand, account of a little known region, with notes on the ancient remains.

The nature of the colour of pottery, with special reference to that of Ancient Egypt, by A. Lucas. *Journ. R. Anthr. Inst.* (1929), LIX, 113–129.

An admirable account, mainly of red and black pottery, illustrated by plates belonging to the article which follows it.

Anniversary Address [to the Society of Antiquaries], by the Earl of Crawford and Balcarres. *Antiq. Journ.* (1929), IX, 193–216.

A general survey and a plea for research.

Leaves from an Anatolian Note-book, by W. M. Calder. *Bull. of the John Rylands Library, Manchester* (July 1929), XIII, 254–271.

Assyriology in England during and since the War, by T. Fish. Ib. id. pp. 293–304.

A very useful summary.

A further note on Hermes, by J. Rendel Harris. Ib. id. pp. 305–308.

Connects Hermes linguistically with the word 'elm'. We are surprised that a reputable journal should publish such rubbish.

Guide to Egyptian Antiquities from Mostagedda, Badari District, Middle Egypt, 1928; exhibited in the Nineveh Gallery, British Museum, 9–27 July 1929. By Guy Brunton. Free.

The Origins of road transport, 3500–500 B.C., by Hugh P. Vowles. *Roads and Road Construction* (1 May 1929), VII, pp. 173–175. [Continued from p. 133 of the same volume].

Ur of the Chaldees: more Royal Tombs, by C. Leonard Woolley. *The Museum Journal* [Univ. of Pennsylvania] (March 1929), XX, 7–35, 18 illus.

The Palestine Expedition: Report of the 1928 season, by Alan Rowe. Ib. id. pp. 37–88, 35 illus.

The two Royal Stelae of Beth-Shan, by Alan Rowe. Ib. id. pp. 89–98, 3 illus., including sketch-map.

A new expedition to Egypt, by H. H. F. Jayne. Ib. id. (June 1929), pp. 113–118.

'An expedition [of the Museum of the University of Pennsylvania] has been formed under the leadership of Mr Alan Rowe, and in November [last] began work at Medum', some fifty miles south of Cairo.

Les civilisations néolithiques et énéolithiques de la France. *Rev. Anthr.* 1928–9. Pp. 61. [Em. Nourry, 62 rue des Ecoles, Paris V^e^. 8 francs].

An excellent summary. We would warn intending purchasers that the cost of postage and packing demanded is nearly as much as that of the pamphlet itself.

Note géologique, préhistorique et protohistorique du territoire de Wimereux (Pas de Calais), par Mlle Augusta Hure. *Bull. de la Soc. préh. franç.* (June 1929), XXVI, 345–52.

Reviews*

AIR-PHOTOGRAPHY FOR ARCHAEOLOGISTS (Ordnance Survey Professional Papers, new series, no. 12). *By* O. G. S. CRAWFORD, F.S.A. *H.M. Stationery Office.* 1929. *pp.* 44, *with* 19 *plates.* 4*s* 6*d.*

Mr Crawford has in his earlier works established the importance of air-photography in the modern study of archaeology. He now goes on to supply a real need in dealing with the practical side of the question, and this book provides field-workers and aviators with clear and concise guidance as to the circumstances under which air-photography may be expected to be helpful, the means by which it achieves its objects, and the limitations which some enthusiasts may forget that it inevitably possesses. The technique of the actual photography is beyond the scope of the work, but the author deals with the choice of suitable subjects in regard to season, time of day, lighting, soils, crops and the nature of the antiquities to be recorded. He divides suitable subjects into three main varieties :—(1) ' shadow-sites ', where grass-covered earthworks are thrown into relief by oblique sunlight ; (2) bare soils, where chalk banks that have been destroyed by ploughing may sometimes be revealed by a white smear on a ploughed field ; and (3) ' crop-sites ', in which hidden ditches, foundations, etc., are revealed by means of a change of colour in the oats or wheat growing over them—a change which is caused by varying degrees of moisture or richness in the soil. The best known example of this last method is the remarkable air-photograph of the lost Roman city at Caistor, near Norwich, that appeared in ANTIQUITY for June 1929, p. 183. Of these three classes of subjects the first is the most obvious, the second the least useful because it is the most vague, and the third is the most spectacular and the one by which most new discoveries are likely to be made. So scientific has archaeology become since the war that no means of knowledge, however trivial, is despised; even the homely potato may be of archaeological significance if it happens to grow over a hidden ditch so that its leaves are a darker green than those of its neighbours !

The illustrations consist of nineteen full-page air-photographs, well-chosen and beautifully reproduced. They are selected specially to illustrate the points which the author emphasizes as to the suitability or otherwise of various kinds of subjects for air-photography. Specially striking are the five cases in which two photos have been taken of the same site under different conditions, as morning and evening sunlight, or no sun at all, bare soil and crops, or grass and oats. Antiquities invisible or barely visible under one set of conditions may stand out with startling clearness under another. In one photograph the Stonehenge Avenue is seen traversing, first turf-covered downland, and then a field of wheat. Seen from the ground this earthwork is well preserved in the former part of its extent and completely obliterated in the latter. From the air, however, both parts are equally visible and almost identical in appearance, though the method of their showing up is different in each case.

---

* We regret that owing to pressure on our space a number of reviews are held over.

So far, excellent ; but what the field-worker still needs to know is how he may get sites of his own choosing photographed to order. This we hope will come in time, and we know that Mr Crawford would supply this information if he could, for he points out on page 5 what immense fields of research await attention in all parts of Britain. It is earnestly to be desired that it may be possible for some arrangements to be made with the Air Force authorities by which co-operation could be established between archaeologists and observers in training.

Only one grumble : why do government publications persist in using cheap-looking, straw-coloured paper which private publishers would be ashamed to use ? Also, larger type, involving more pages, would greatly facilitate reading, and would be worthier of an otherwise admirable publication.

E. Cecil Curwen.

PREHISTORIC SUSSEX. *By* E. Cecil Curwen, M.D., F.S.A. *Homeland Association.* 1929. *pp.* 172, *illus.* 10*s.* 6*d.*

In the foreword to this book Mr Crawford alludes to the helplessness of an interested but uninstructed public who have no means of distinguishing between good and bad archaeological books. The only remedy is their education, and it is by books of this class that that education will be brought about. Seventeen years of thorough fieldwork have given the Author a knowledge of his ground and of his subject that can be felt on every page, both by the uninstructed and the expert; for though there is nothing too heavy or too technical in the book for the general public to appreciate, his accurate descriptions, the clearness of his summaries and his careful references will be of service to all archaeologists.

After an admirable introduction, he has chapters on flint-mines, barrows, hill-forts, villages and cultivation, prehistoric and Roman roads, and miscellaneous earthworks ; with a final technical chapter on the detection and mapping of earthworks, of which he has recorded many for the first time.

Sussex, with the exception of Grime's Graves in Norfolk, has at present a monopoly in England of proved prehistoric flint-mines, though there are suspected, but as yet unexcavated, sites in other counties, and the vivid first-hand descriptions of the conditions found at Blackpatch and Harrow Hill should do much to stimulate scientific research elsewhere.

In long barrows the South Downs are not so rich, though there are two small groups at the extreme east and west of the range. Bronze Age round barrows, both single and in groups, are more numerous and occur all along the line—from Kent to Wiltshire they grow commoner as one goes west. Disc barrows occur, though in the description of them no mention is made of the central tump, and it is stated that the ditch may be found outside the bank.* Allusion is made to the rare ' platform ' barrow, of which an example is noted but not described on Lewes Race Hill. Pond barrows are not mentioned, though the hollow north of the Ridgeway on Glatting Down looks very much like one. Some of the smaller single specimens of round barrows on the Downs, which used to be considered Saxon, have been proved to be Romano-British, and there seems to be no group of pagan Saxon barrows such as occur in Kent, and which we might expect after the thirteen years stubborn fighting which took these invaders from Chichester to Pevensey. A good summary of the late Mr Hadrian Allcroft's views on circuses, of which two have been excavated in Sussex, concludes the chapter.

* Instances of this occur in Wiltshire also.—Editor.

The chapter on the hill-forts contains descriptions of the Author's excavations at the Caburn and the Trundle, and a special surface-study of Cissbury. The Trundle and Whitehawk camps have been proved to be neolithic, and a third at Combe Hill has the characteristics of this rare and newly-discovered class. Both Cissbury and the Caburn yielded evidence of their Early Iron Age date, as well as of strengthening and reconstruction after they were built—the Trundle is an example of an Early Iron Age fortification placed on top of a neolithic entrenchment—another instance of the continuous occupation of an early pastoral site. The time is ripe for an analytical classification of the hill-forts—of the twenty-four listed by Dr Curwen only a few seem to be of the strong Early Iron Age type, so common further west, with ramparts anything from ten to more than twenty feet above their ditches. Such camps as Halnaker and Bow Hill, with their four or five foot banks, have really nothing in common with Cissbury or the Trundle beyond their hill-top position. Detailed measurements might have overloaded the book, but the vertical crest-ditch height would have been welcome, and would have helped the reader to visualize the strength and character of the entrenchment. Sussex is fortunate (for Saxon earthworks are rare), in having no less than three ' burhs ' mentioned in the Burghal Hidage—at Lewes, Hastings and Burpham—and of these the last two survive.

Dr Curwen and his father are so well known for their admirable work on the remains of prehistoric cultivation and settlements upon the Downs, that the reader will turn at once to the chapter on this subject, and he will not be disappointed. The description of the Park Brow agricultural settlement, with its successive occupations in the Late Bronze, Hallstatt and La Tène times, each with its distinctive form of habitation, and its evidence of prosperity under the Pax Romana and its burning and destruction by the Saxons, makes most interesting reading. Here at least Archaeology deciphers and presents to History a document of real importance.

The chapter on roads is one of the most interesting. The Author deals thoroughly with Stane Street and the two other certain roads out of Chichester, one of which is now lost, as well as the easterly road which probably existed. He discusses terraced and engineered Romanized trackways which slope up to the Ridgeway, and the ' underhill ' roads which connect up along the edge of the Weald for the whole length of the South Downs. These lanes, by a careful and laborious examination of the Domesday manors and the modern map, he clearly shows to be a series of connexions between the Saxon settlements, and not a continuous entity.

To the main Ridgeway, which reaches from Beachy Head to Winchester, and so on across Salisbury Plain to Cornwall, he perhaps does not do full justice. He proves, for the first time we think, the neolithic age of two roads connected with it by the fact that neolithic flint-mines have cut completely through them, and it must have been a great trade-route for cattle and other exports at least as early as the Iron Age. It is probably the key to many an archaeological problem, especially in Sussex.

The class of linear earthworks, discussed in this chapter, to which Colt Hoare's unfortunate question-begging term of ' covered ways ' is still applied, again calls out for analytical study. The single-banked Rackham Bank, for instance, of defensive type, and the part of the Wardyke in Arundel Park, or the long continuous earthwork along the edge of Rewell Hill above Fair Mile Bottom, have not much in common with one another, and still less with the double-banked cross-ridge ditches, which span the Down between precipitous scarps or from scarp to forest. Dr Curwen is wisely cautious and non-committal as to their purpose, though perhaps too ready to speak of them as roads ;

but his suggestion that they were cattle-ways will explain many of them—indeed, it is in this direction, as it seems to the writer, that the solution of many of the puzzles must be sought. In West Sussex at least, many of the so-called hill-forts and supposed ' British camps ' such as Bow Hill, Bexley Bushes and Fernbeds seem best explained as protected cattle enclosures. The half-wild cattle must have roamed in the forest of the Weald and over the patchy scrub of the wide southern slopes, and rounding them up for mustering, sorting and marking must have been a difficult business. The typical v-shaped narrow-bottomed cross-ridge ditches between double banks, probably topped by a wattle fence, would admirably serve the purpose of the ' cattle-races ' of a modern Argentine estancia, while the ' kinks ' might be the places for the swing-gates which, in South America, are operated from a bridge. The tracks leading up to the ends of the cross-ridge ditches, the single-banked protective-type cross dykes, which sometimes occur in connexion with the double-banked, and the doubling and trebling of the latter, seem to fall in with this hypothesis ; while the two Rewell Wood enclosures, which, from the absence of *reliquiae* can hardly have been for human occupation, may be examples, the one of a very highly complicated, and the other of a comparatively simple, cattle-enclosure.

The description of the tracing of the ancient road from Portslade to the Ridgeway is an excellent example of the delights of field-work, and also of the careful inductive reasoning required to prove conclusions ; we must, however, record a doubt that ' slade ' ever had the meaning of ' road '.*

The three special descriptions in the last chapter of Windover, Rewell and Bow Hills, with their scenery and their problems, are such as make the Field Archaeologist's mouth water. The inhabitants of Sussex—prehistoric and present-day—are fortunate in having the two Dr Curwens to work out their history.

One must not forget to praise the excellent photographs and illustrations, nor the happy thought of making the inevitable loose cover justify its existence as an index sheet and archaeological map.† J. P. WILLIAMS-FREEMAN.

THE ARCHAEOLOGY OF THE CHANNEL ISLANDS. *By* T. D. KENDRICK. In 2 vols. Vol. I. The Bailiwick of Guernsey. *Methuen. pp.* 273, 20 *plates and* 131 *figs.* 1928. 25*s.*

This is an important book, full of information, and containing some new and well-balanced theories.

The Bailiwick of Guernsey, which includes the islands of Alderney, Sark and Herm, was an island archipelago at such times as Jersey was part of the mainland of France. This may have been the cause of its remaining uninhabited until the coming of the sea-faring beaker-folk from the south, and of the length and brilliance of its megalithic culture which prospered until about the Ist century B.C., although during the latter part of the Bronze Age a certain amount of intercourse with Britain made its influence felt. There was a settlement in Alderney by a Roman garrison, but ' the romanization of the Bailiwick proceeded slowly, nor are the antiquities of the period of any great account '.

* We think Dr Curwen is following the interpretation given in Roberts's *Place-names of Sussex* (1914, p. 126) where the second element is stated to be *(ge)lad*. But we do not think that this either can mean a road. For both *(ge)lad* and *slaed* see ENGLISH PLACE-NAME SOCIETY, vol. I, part 2 :—*The Chief Elements used in English Pl.ce-names*, by Professor Mawer. For the word Portslade as a whole, see E.P.N.S., vol. VII, when published.—EDITOR.

† We are glad to learn that a second edition of Dr Curwen's book is already announced.—EDITOR.

Mr Kendrick considers the Guernsey statue-menhirs to be survivals many generations later in date than the Bronze Age. The famous bronze hoard from Longy in Alderney dates from the end of the Bronze Age, and all the objects were probably imported from Britain. There were no deposits of copper in the Channel Islands, no true dolmens, no true alignments, and no dressed stones with the exception of the statue menhirs.

The stone monuments Mr Kendrick classifies as follows :—dwelling places, burial chambers, menhirs, lines of small stones. Burial chambers are further divided into two classes. Class I (communal burial chambers) :—type a—passage graves ; type b—chambers without approaching passages ; type c—communal cists. Class II (single graves) :—type a—cist in barrows ; type b—cist in circles ; type c—isolated cist.

There is a chapter devoted to grave-furniture, most of which is occupied by a scholarly survey of the various types of pottery. The remainder of the book consists of a detailed description of the individual sites.

The illustrations are numerous, clear, and for the most part in the right place ; that is, in or opposite the text that refers to them. The writing of this altogether admirable book must have entailed an immense amount of painstaking and discriminating research work. The author has set himself a high standard for the second volume, which we are now eagerly awaiting.

R. C. C. Clay.

ROMAN YORK : EXCAVATIONS OF 1926–1927. *By* S. N. Miller. *Journal of Roman Studies*, vol. xviii, 1928, *pp.* 61–99, *plates* iv–xi.

The Roman legionary fort of York, which in its latest stage enclosed an area of fifty acres, formed a rectangle of which the four corners pointed to the cardinal points of the compass. In post-Roman times a great mound of earth was heaped over the north-eastern and northwestern walls of the Roman fort, which were yet standing in places to the height of sixteen feet, and, still later, the medieval city wall was carried along the top of the mound. Excavations made into this mound in 1925 at the east corner of the fortress, described in volume xv of the *Journal of Roman Studies*, revealed the existence of a clay rampart, which appeared to have been thrown up by Petilius Cerealis in A.D. 71–74, and to have formed the earliest defence. A stone wall had been built along the outer margin of this rampart in the reign of Trajan, and was found to have been superseded in its turn, at the close of the second century, by a later wall, built immediately behind the earlier one which had been demolished. The corner was found to have been protected by an internal tower of stone.

Further excavations carried out in 1926 and 1927 by Mr S. N. Miller, who has been in charge from the outset, are described in volume xviii of the same Journal. The corner turret was completely excavated, and a post-hole showed it to have been preceded by a wooden structure. It may safely be inferred that the wooden turret was contemporary with the clay rampart : its stone successor was perhaps slightly earlier than the first stone rampart wall. It was again rebuilt, and its basement was finally filled in solid. None of these features are traceable in the large fourth-century external bastion known as the Multangular Tower, at the opposite corner of the fortress, and trenches dug at that point revealed no early work. This showed that the Multangular Tower does not represent the original west corner of the fortress, and raised the presumption that the northwest and southwest rampart walls, of which that tower forms the angle, were on a line different from the original defences.

The rest of Mr Miller's excavations were devoted to clearing up this point. It was already known that the wall built in the Commodus–Severus period continued in use till the end of the Roman occupation for some distance on either side of the east corner, and that here there had been no change of line. The earlier wall was traced as far as the northeast gateway, but between that point and the north corner its place had been taken by a fourth-century wall, built, apparently, upon the concrete foundation of the earlier structure. Trenches cut in the northwest defences disclosed the fact that here also the wall was of fourth-century date, but, as at the western bastion, there was no sign of earlier work. That the earlier defences had taken a different line was made more apparent by the discovery, close up to the wall, of barrack buildings of the earlier period. It follows that, in the fourth century, perhaps in the time of Constantius Chlorus, the legionary fortress was reduced in size, but the original line of defence on two of its sides has yet to be discovered. H. H. E. CRASTER.

THE PITT-RIVERS MUSEUM, FARNHAM. Handbook *edited by* L. H. DUDLEY BUXTON. *Farnham Museum.* 1929. *Price not indicated.*

A popular handbook of the Pitt-Rivers Museum at Farnham, in Dorset, was very badly needed. The present book makes a valiant attempt to deal adequately with the rich material stored there. Its publication is due to the revival of interest aroused by Captain George Pitt-Rivers. It consists of notes on the district by Captain Pitt-Rivers, a brief memoir of General Pitt-Rivers by Mr St. George Gray, followed by a description of the Museum itself and a number of objects of interest in it. Mr Gray also contributes a chapter on the models of ancient sites excavated by the General. There is a chapter on ' the Clay and the Pot ', by Dr H. J. Harrison, on ' Ceremonial Objects ' by Dr Marett, and on ' an Egyptian Tombstone ' by Professor Griffith. The Editor contributes a chapter on the ' Works of Art from Benin ' and other subjects.

We cannot help feeling that, excellent as the handbook is as a whole, it falls short in respect of what, after all, was General Pitt-Rivers' main achievement, the work which he carried out in his own grounds. He was the first archaeologist to carry out scientific excavations, and he will be known for that long after his work in anthropology has been forgotten. There is a certain incompatibility between some of the specimens in the Farnham Museum from the other side of the world, and those which he dug up on his own estate, and we cannot help thinking that the former would be more suitably housed in a national ethnological museum, did such exist.

Students should be grateful to Captain Pitt-Rivers for the good work he is quietly carrying out in pursuance of his grandfather's ideals. It is up to archaeologists to support him to the fullest extent in this mission, and such small criticisms as we make really fall as much upon them as upon those responsible for this handbook.

A few miscellaneous points :—on page 7, it is more likely that the ' mere ' in ' Larmer ' means a ' pond ', and that the first part refers to some yellow flags which grew in it. The writer is apparently unaware that this interpretation is given in a study of the bounds by Dr Grundy, published in the *Archaeological Journal*, LXXVII, 29.

A photograph is published of the model of the Roman villa excavated at Iwerne. This was the last work carried out by the General immediately before his death, and one of the many disastrous results which ensued therefrom was that no attempt was made to publish it. If not too late, we wonder whether Captain Pitt-Rivers could not now remedy this misfortune ? The building in question was excavated with the General's

characteristic thoroughness, and since then very few isolated Roman buildings have been dug with equal care. There are other legacies which remain, such as, for instance, the unique hoard of winged axes from Donhead, of which the learned world is still in complete ignorance. Incidentally, we would suggest that the second edition, which is certain to be required, should mention, in the title, the fact that Farnham is in Dorset. Nine out of ten people who see this handbook away from the Museum will conclude that it is at the Farnham in Surrey; in fact, practically everyone to whom we have mentioned the Museum as one that *must* be visited has concluded that it was in Surrey, and we believe that some have even gone to that place and been disappointed.

EURASIA SEPTENTRIONALIS ANTIQUA: Journal for East European and North Asiatic Archaeology and Ethnography. *Edited for the Finnish Archaeological Society by* U. T. Sirelius *and* A. M. Tallgren. Vols. I–III.

Prof. Tallgren of Helsingfors was the first prehistorian from the capitalist west to travel in the Union of Soviet Socialist Republics. One result of his journey perhaps was the foundation of this international journal for the study of that diversified, yet in history always interrelated, area which extends from the Baltic to the Behring Straits. Its effect is to make known to the Western world in English (unfortunately not very often), French or German the amazing results being obtained by Russian, Finnish, Lett and Polish excavators.

The first volume, published in 1926 but numbered II, is entirely devoted to a study by Tallgren of South Russia in pre-Scythian times. Here we get access for the first time to the results of pre-war Russian excavations in those steppe kurgans in whose builders Myres, Peake and Childe have sought the first Aryans. The account is abundantly illustrated and unified by the author's personal study of the local museums and sites. He also describes the Late Bronze Age industry of the Ukraine wherein Hungarian types predominate, but spear-heads with crescentic openings in the blades, although cast locally, suggest connexions with Britain.

Our knowledge of the steppe cultures is greatly extended by the Russian excavations published by the excavators in subsequent numbers. Notable is Rykov's account of the 'Chvalynsker Kultur' on the Lower Volga in vol. I (spear-heads with folded sockets or ? cast sockets and an ear associated with 'copper age' types of daggers and axes); Bortvin's 'The Verkhny-Kizil Find' in III (a hoard of the same period from the Ural region); and Schmidt's discussion of the whole subject in the light of the Ur finds in IV, raising the dating of the great North Caucasian kurgans to the 3rd millennium once more. In the same volume, however, Prof. Tallgren, after signalizing many surprisingly close agreements between the North Caucasian culture and that of the eastern Alps (Laibach, etc.), again maintains a low dating.

Other important papers deal with interglacial remains from Manchuria, the 'Kamennye baby' and the Esthonian law on antiquities, a piece of legislation that might well be copied in this country. In each volume there is a very complete and useful summary of recent literature, particularly Russian. Clearly in the U.S.S.R. prehistory is, like other branches of intellectual life, advancing with great rapidity. If only for keeping us in touch with such developments ESA is to be welcomed and sought for.

V. Gordon Childe.

DIE BRONZESCHNABELKANNEN. *By* P. JACOBSTHAL *and* A. LANGSDORFF. *Berlin.* 1929. *pp.* 104 *with map and* 42 *plates.*

The bronze wine flagons with beaked spouts (*Schnabelkannen*) which form the subject of this sumptuous volume are among the most widely distributed objects of south European workmanship found in Iron Age contexts to the north of the Alps. They have come to light in Germany, France, Czecho-Slovakia, Austria and Belgium ; in the Celtic Chieftains' graves (La Tène A) of the Middle Rhenish area they are particularly well represented, and they occur, though less frequently, in the rich chariot-burials of the Marne culture. South of the Alps they have been found in Italy and Switzerland. Although they have aroused much interest, it has fallen to Doctors Jacobsthal and Langsdorff to write the first exhaustive treatise concerning them. The association of these authors is a happy one : Dr Langsdorff is among the foremost of the younger prehistorians in Germany ; while Dr Jacobsthal's distinguished contributions on classical archaeology have won for him a European reputation.

Apart from an excursus by Langsdorff on objects (now in Berlin and Brunswick Museums) from the Ticino and Mesocco valleys and an appendix giving a full list of the flagons, etc., the work falls into two main parts. The first, the work of Langsdorff, is a carefully compiled account of the contexts in which the different flagons occurred with ample references to the relevant literature. It contains (p. 37) some useful corrigenda to Déchelette's inventory in the last volume of his celebrated *Archéologie Celtique*, p. 1599 ff and to my map in ANTIQUITY, 1928, II, 438. Dr Langsdorff is to be congratulated on the thoroughness with which he has collected his information. The second part is by Jacobsthal : a detailed description and analysis of the flagons from a stylistic point of view—an admirable and to those not versed in classical archaeology quite an indispensable contribution.

Jacobsthal makes out a powerful case for the Etruscan origin of the beaked flagon. Perhaps the strongest evidence he advances in support of this view is the similarity between the engraved decoration on the necks of these vessels and the engraved ornamentation on Etruscan *buccheri* of the sixth century B.C. The remarkable homogeneity of the beaked flagons leads him to believe that, with very few exceptions, they must have been made at one place, but this at present is not easy to determine precisely. Neugebauer has shown that the flagon from Schwarzenbach (Birkenfeld) was made at Vulci. But, in Jacobsthal's opinion, the place where the majority of these vessels originated was not situated in so central a region : the half-barbaric engravings on the neck of the flagon from Weisskirchen (Pfalz), so strangely in contrast with the almost Greek character of its plastic zoomorphic ornamentation, together with the completely foreign nature of the neck-engravings on the example from Armsheim (Rhein-Hessen) point to their place of origin being located in some region ' which on the one hand had close affinities with Vulci and related workshops, and on the other where traditions survived from which the decoration on the Armsheim flagon in particular was derived '. He suggests Picenum or Umbria. But is not the evidence of these two examples too slight to prove that the main centre of manufacture lay outside of Etruria proper ? Is it possible that the neck-engravings of the above two specimens were added later and in a region other than their place of origin ? I refer to Jacobsthal's remarks on the Halistatt character of the neck-engravings on the Armsheim flagon (p. 52). And if not, is it not more likely that they came from workshops other than those in which the majority of flagons was made ? Even Jacobsthal admits that some specimens did not originate in the main centre of

manufacture (*e.g.* flagons nos. 116a and 117, not to mention the South Alpine and La Tène copies), although, apart from their neck-engravings, the vessels from Weisskirchen and Armsheim stand in closer relation to the main body of *Schnabelkannen* than any of these.

Among the barbaric copies of these southern flagons, those of the South Alpine area are of considerable interest. An analysis of the ornamental features on the latter, leads Jacobsthal to state that they were of the same date as their southern prototypes, and reveal no motifs later than the fifth century B.C. (see p. 57). Ignoring flagons 35, 82, 127–9, since nothing is known of the contexts in which they were found, the *Schnabelkannen* from the Ticino valley fall into two groups : according to Jacobsthal, six examples are Etruscan imports, four South Alpine copies. Of the first group, two (nos. 8 and 39) were found in graves whose furniture contained, among other objects, antiquities dating from La Tène B (*c.* 400–300 B.C.) ; the rest occur in contexts of an apparently Hallstatt D character. Of the copies, only one (no. 123) was found in a grave of a Hallstatt facies. With no. 124 were associated two advanced La Tène B fibulae (see p. 19) ; while no. 126, the most barbaric of these copies, was found with objects dating from the second and first centuries B.C., but the account of the excavation of this grave is thought to be unreliable. I know of no other region in which beaked flagons occur in contexts that can with certainty be assigned to so late a date as the above examples from the Ticino area. Apart from this, the chronology of the South Alpine cemeteries is notoriously obscure : types of a Late Hallstatt (D) character are often associated with objects dating from subsequent periods, and the same applies to objects which elsewhere might be confidently assigned to La Tène B. So that it is practically impossible to say if graves of a Hallstatt D or La Tène B facies actually date from those phases and not later. This renders the dating from a purely stylistic view of any object found in this area extremely hazardous. Dr Jacobsthal thinks it possible that La Tène influences may be traced in the ornamentation of certain of the South Alpine copies. Were this to be established, it would mean that the flagons in question were assuredly later than the fifth century, since there is neither archaeological nor historical evidence to show that the La Tène culture existed in that region prior to the beginning of the fourth century B.C., the civilization of La Tène A being unrepresented there.

Dr Jacobsthal holds that the trade between the North and the South passed over the Great St. Bernard ; like other Alpine passes of over 2000 metres, the Great St. Bernard suffered from the Sub-Atlantic climate crash : little is found from the later Hallstatt and earlier La Tène phases to show it was much used in those times—nearly all the objects found at Mont Joux date from the later La Tène and Roman periods. Evidence of Etruscan influence in that part of Switzerland is exceedingly slight. The West Alpine area (see ANTIQUITY, 1929, III, 38) was a phenomenally conservative district. Von Duhn (*Neue Heidelberger Jahrbücher*, 1891, p. 79) observes that there are no grounds for believing the Great St. Bernard to have played any part in the transmission of Etruscan and Greek objects to the North. No bronze beaked flagons have as yet occurred in the region of that pass. Indeed, apart from the Ticino and Mesocco valleys, not a single *Schnabelkanne* has come to light in Switzerland or in Southern Germany south of a line from Hagenau to Ulm. In the opinion of the reviewer, allowing that the beaked flagons were of Etruscan workmanship, there are fewer objections to their having been shipped to Massilia and thence reaching the Celtic area. That a trade existed between the last-named area and Massilia is proved by the finds at Camp de Château (Jura). The arguments in favour of this view are too lengthy to be given here and the reader is referred

to ANTIQUITY, 1928, II, 432ff, especially p. 439ff, where the connexions between Italy and Massilia are also discussed. The fact that no flagons have been found in the Middle Rhône region cannot as yet be advanced against those travelling by this route: unlike northern Switzerland and southernmost Germany, this area has never been systematically excavated. It should be noted that the presence of beaked flagons as far west as the Department of Cher and in the Puy de Dôme region lends weight to the view that Etruscan objects were being exported to the Celtic and adjacent barbaric regions via the South of France rather than by the Alpine passes. Finally, as we have seen, the presence of such objects in the Ticino and Mesocco valleys cannot be advanced in support of the Alpine argument, until the crooked chronological ways of the South Alpine cemeteries have finally been made straight.

The occurrence of flagons at Riva and Martignano would rather lead one to infer that the five *Schnabelkannen* from Austria and Czecho-Slovakia reached those countries by way of the ancient Adige-Brenner-Inn-Elbe route. But unfortunately nothing is known of the circumstances of the above two finds.

One cannot but regret that Dr Jacobsthal had not the chance of personally examining the remarkable finds from Bouzonville (Moselle) recently acquired by the British Museum (see p. 99). The Scythian character of certain zoomorphic elements on the two flagons is striking. But even if the existence of Scythian influence upon Early La Tène art were established, that influence could only be of secondary importance. Contact between Celt and Scythian in Silesia can hardly ultimately account for the Scythic elements on these flagons, the Celts not reaching that region before *circa* 400 B.C. (La Tène B), while the vessels in question are assuredly not later than the fifth century. It will be interesting to read what this distinguished scholar has to say on this point.

In venturing the above criticisms, the reviewer does not wish to belittle this great work in the eyes of the layman. To the expert, there is no danger of this: the book is, and is likely to remain, the turning-point in the study of these important vessels.

J. M. de NAVARRO.

THE EXPLORATIONS IN THE TYROPOEON VALLEY, JERUSALEM 1927. *By* J. W. CROWFOOT, C.B.E., M.A., and G. M. FITZGERALD, M.A. *Published by order of the Palestine Exploration Fund Committee and sold at the Office of the Fund, 2 Hinde Street, Manchester Square, W.* 1. 1929.

This is the second of the ' Annuals ' devoted to the topography of the Hill of Ophel and the Tyropoeon Valley, and while it does not finally dispose of all the problems relating to its subject it is manifest that the volume carries forward clearly and effectively the process of dispersing the cloud of mystery and the mass of controversy which have hung for ages round the earliest chapters of the origin of civilization at and around what is now comprehensively known as Jerusalem.

One outstanding question has been definitely settled by the excavations described in the present volume and its immediate precursor, viz., the site of the Jebusite fortress which later became the ' City of David ' and ' Mount Zion '. Whatever remains or outposts may yet be discovered northward of Ophel, or on the western hill, it is now established that the passages in the Books of Kings and Chronicles relative to the Hebrew Conquest refer to the city which has been disclosed by these excavations.

The great trench which the explorers dug from the ridge of Ophel westwards into the Tyropoeon Valley revealed in its lower stages the massive walls, including a gateway,

which belonged to the western defences of the Jebusite stronghold which King David captured somewhere about 1000 B.C. Already considerable remains of the Jebusite defences had been found on the eastern slope of Ophel, facing the Kedron Valley, near the southeastern angle of the Temple Area, and again immediately overlooking the Virgin's Well. The lowest rock level reached in the great trench in the Tyropoeon Valley and in front of the great gateway, was a little over fifty-eight feet below the present ground level, indicating the extent to which, at this point, the valley has been filled up by the rubbish accumulated in successive demolitions and re-buildings on the site. The picturesque Old Testament incidents which gather round the Virgin's Well, indicate the profound interest which attaches to almost every chapter of research in Palestine.

The story of palaeolithic and neolithic Palestine has yet to be written, but memoirs like the one before us illustrate the methods and processes by which some of the great blanks in the reconstruction of ancient historical civilization are being filled up in our own day.

The limits of this notice forbid any description of the Byzantine Street lying some twenty-five feet above the base of the old Jebusite walls, or of the house in the lowest level in the middle of the Tyropoeon Valley in front of the western gateway, or of a score of other interesting items down to the roof-tile bearing the stamp of the xth Roman legion. The photographs, plans, sections, and drawings of the various 'finds' and their classification are excellent, and of the utmost value both to the student and the general reader.

The generosity of Sir Charles Marston, the happy and useful relations which subsist between the official archaeological authorities in Jerusalem, and the skill and efficiency of the actual explorers on the spot, are all points which emerge at various stages in these records, to the gratification of all those who are interested in the revelation of the archaeological secrets of the Holy Land. THOS. HARRISON.

DIE PFAHLBAUTEN DES BIELERSEES. *By* TH. ISCHER. *Biel* (*Verlag des Heimatkundekommission Seeland*). 1928. *pp.* 240 *and* 20 *plates.* 10*s.*

Dr Ischer's little book on the pile-dwellings of the Lake of Bienne does really give a lively and illuminating account of the life and work of prehistoric times that is applicable to a much larger sphere than that indicated in the title. The author combines with his exhaustive knowledge of the rich remains so miraculously preserved by lacustrine mud the fruits of extensive reading in anthropological literature and of prolonged personal study in ethnographic museums, as well as of the habits of the local peasantry. His clear figures and descriptions of the relics, supplemented by apt and beautifully illustrated parallels from among modern savages, bring home vividly to the reader how prehistoric man made and used things. Thus flint-flaking is illustrated by figures of Bushmen and Esquimaux at work, the use of the bow-drill from Egyptian paintings and photographs taken in the South Seas, the spindle by a peasant from Valais. So the book not only revives our interest in the Lake-dwellings—a subject whose value is apt today to be overlooked on account of its strong Victorian flavour—but is immediately helpful in quite different problems.

Dr Ischer's field is narrower than that of Reinerth (reviewed in ANTIQUITY, 1927, I, 380) and he makes no attempt at a detailed grouping such as was attempted by his German colleague. At the same time he treats of the material more fully and includes the Bronze Age in his survey. Quite apart from the general stimulation provided by

his treatment, a number of new or forgotten details came to my notice. I may instance the yoke from Vinelz, a wooden spear-thrower which Ischer's ethnographic knowledge enabled him to recognize, the amber beads from Sutz, horn ' sun-discs ' quite like our gold ones, and square-barbed arrow-heads (also a bracer) again recalling British types. It is interesting to recall that there was a distinct industrial quarter in the Bronze Age pile-village of Mörigen such as has recently been recognized in prehistoric villages in southern England and the Orkneys. Dr Ischer has further some pertinent remarks to make on the limits of the stratigraphical method as applied to lake-dwellings on a shifting strand line. Altogether this is a valuable book. It is a pity it is printed in Gothic type. Indeed it would be well worth translating. V. Gordon Childe.

LIFE AND WORK IN PREHISTORIC TIMES. *By* G. Renard. *Kegan Paul* (*History of Civilization*). *pp.* viii, 228, *with* 24 *illus.* 1929. 12*s* 6*d.*

It is one of the many merits of the great series on the History of Civilization that it makes available to English readers the work of their foreign contemporaries. Yet to succeed here, the authors of a general work like that before us ought to have sufficient breadth of vision to throw light on problems that confront us in the British Isles and to take account of authors, even British authors, who are not their compatriots. In this respect at least Professor Renard fails badly. Stonehenge is classed with ' the cromlechs of Morbihan and the Deccan ' as a neolithic burying-place ! (p. 28). In discussing dwellings nothing is said about beehive huts and the type of stone architecture they involve, nor is any reference made to the survivals of the type described by Mitchell and others. The foot-plough and its survivals are equally ignored. Of the many British authors who have made signal contributions to the illumination of prehistoric darkness by modern ethnographic parallels only ' Lubbock ' and Haddon are even mentioned perfunctorily ; the work of Tylor, Pitt-Rivers, Gowland and Mitchell, to say nothing of their more recent successors, is evidently quite unknown to the author.

Partly as a consequence of this defect many serious inaccuracies disfigure his accounts of technical processes. On pottery we read (p. 68) ' the black (vessels) were baked in the open air, the red by firing inside the house '. The very exiguous account of primitive metallurgy given on p. 70, while failing completely to give an impression of the romance of the craft, bristles with inaccuracies or obscurities : for instance the author ignores the fact that the crucible was at first often if not always placed *under* the fire and describes the gouge as ' a sort of hollow which worked into the thick part of a flint chisel can hollow out a piece of wood ' (? bad translation).

The archaeology is worse than the technology. Mesolithic is equated with Middle Palaeolithic ; as type sites of the transitional period (our mesolithic) Campigny, Mas d'Azil, Fère-en-Tardenois and Gafsa are mentioned. But Kjökenmodings (*sic*) on the sea coast and the edge of the deserts are classed with dolmens and Stonehenge as Neolithic. From p. 125 we should infer that the sickle was invented after the plough. Page 72 states : ' In Western Europe the iron industry is of two types. The older is revealed to us by the excavations at Hallstatt in Bavaria, and seems related by its products to the products of Asia Minor on the coasts of the Black Sea which were carried westward by the Russian steppes and the Danube valley. The other, that of La Tène, a valley in the canton of Neuchâtel in Switzerland, derives on the contrary from the Mediterranean culture and came north by the Aegean Islands, Greece, and Italy '.

After citing this specimen of archaeological and geographical knowledge—to say

nothing of literary style—it would be useless to proceed to enumerate the real merits of the book. We cannot refrain, however, from drawing attention to the illustrations, which seem to have been chosen in most cases without the least reference to the text. One whole plate is occupied by a *Pecten* shell ; another represents atrociously what purports to be a Mousterian scraper. Others depict the ' death of Captain Cook ', a reconstructed ' dolmen ' at St. Germain, a mammoth, and a rope bridge. All these seem quite irrelevant and should have been replaced by some of the excellent available representations of primitive, ancient or medieval pot-making, smelting, mining, ploughing, etc. Of the twenty four illustrations, indeed, exactly half are either quite irrelevant or at least unessential. The choice of good illustrations is often one of the most difficult, as well as most vital, tasks of authorship. In the subject here treated, however, any writer who knew the literature would be embarassed only by the number of excellent and easily accessible figures at his disposal.

I for one feel the need of a book on prehistoric life illustrated by ethnographic parallels. But it must be written by an author familiar with both domains and in (or translated into) readable English. Then I am sure it would sell. The present book will not.

V. Gordon Childe.

THE SALISBURY AVON. *By* Ernest Walls. *With sketches in pencil by* R. E. J. Bush. *Arrowsmith.* 1929. *pp.* xii, 287, *with* 31 *illustrations.* 10*s* 6*d.*

This is the second of Mr Walls' river books. In the first, ' The Bristol Avon ', he followed the course of that stream from its source, through north and west Wiltshire and Somerset, and so to the sea at Avonmouth. In the present volume, he begins with the sea at Christchurch and journeys along the river banks by the New Forest and Fordingbridge to Salisbury and thence up the Avon Valley, turning aside to explore the tributary streams, the Wylye, the Nadder and the Ebble, on the way, until he runs his river to earth at its source at Bourton in Bishops Cannings on the northern side of Pewsey Vale. The Wiltshire portion here dealt with occupies just twice the number of pages allotted to Hampshire. The Author does not set out to write an ordinary guide-book. Unless a church is something quite out of the common, he scarcely mentions it, and when he does he gives you an impression of it as a whole, rather than the details of its architecture. The places he likes to pause and muse upon are those which possess some historical or literary association, or, for he has distinctly an eye for prehistoric things, those which possess some special archaeological interest. Berwick St. John for instance, and Alvediston, are brought into the story chiefly for the sake of Dr Clay's discoveries in the pit-villages, and when he comes to Stonehenge he gives himself leave to treat the subject far more fully than he has treated any other portion of his journey. So far from being satisfied with the usual guide-book hash, he shows that he is really acquainted with the most recent literature on the subject, with the result that he has written what is exceedingly difficult to write, a really good popular account, which, without going too much into detail, does give a fairly accurate idea of the results of recent excavations, including the work at Woodhenge, and of the various theories as to the age and purpose of the monument which are favoured by present-day archaeologists. It would not be easy to find another essay on Stonehenge of equal length so charmingly written for the motorist or walker to read, and containing so little to criticize and so much to be thankful for. The chapter on Salisbury, again, as a whole, is excellent. Its history, the struggles of the citizens with the bishop, its most notable natives, the close, the cathedral, the

palace and the churches, the things that every visitor ought to see, the fact that, as the author believes, it is the Barchester of Anthony Trollope's novels, and that Hiram's Hospital was St. Nicholas' Hospital at Harnham, are woven together to make admirable reading for the tourist who prefers a general view to the drier details of the ordinary guide. In this section, however, as Mr J. J. Hammond and others have pointed out, there are certain slips. The tournament ground was not at Old Sarum, but between Old Sarum and Wilton. The Mompessons did not live at Batheaston, near Bath, but at Bathampton in Wylye. ' Leyden Hall ' should be Leadenhall, ' Nicholas Hyde ' of Dinton should be Henry, and it was William, not John, Swayne who carried on the famous dispute with John Halle. But these are small blemishes that do not affect the remarkably pleasant taste of the book as a whole. Those who do not know the basin of the Avon in Wiltshire and Hampshire already, and who are moved to explore it in a leisurely way, can hardly have a better introduction to that delightful country than this book supplies.

E. H. GODDARD.

THE NATIONAL TRUST FOR PLACES OF HISTORIC INTEREST OR NATURAL BEAUTY. Report for 1928–1929. *pp.* IV, 131, 7 *plates*, 4 *maps*.

To quote the words of the Report, ' the year 1928–1929 has been an *annus mirabilis* in the history of the National Trust. Not only have some of the properties acquired been among the most important ever handed over to the Trust, but the number of annual subscribers, for the first time in the Trust's history, reached a total of over 1000 '. The latter may be a cause for congratulation to the Trust, but it is a sorry indication of the aesthetic tastes of a nation favoured with so many places worthy of permanent preservation. However it is refreshing to learn that this year less litter has been left behind to mark the lunching sites of tourists.

The Trust is becoming the possessor of places of archaeological interest, and therefor archaeology should be more adequately represented on its councils. Furthermore the funds accruing from the ownership of places of archaeological interest, such as the White Barrow or the land round Stonehenge, should not be engulfed in the common fund, but should go to form the nucleus of a fund for purchasing and preserving other sites of archaeological interest. In short there should be an archaeological branch of the Trust with its own central committee with separate subcommittees for individual sites and its own special fund. When the subcommittee is formed for the land round Stonehenge (there is no mention of such a committee in the Report) it is hoped that the majority of its members will be local archaeologists who have the time and the qualifications, and surveyors who know the local conditions of farming on the chalk. The Trust, out of small beginnings, has grown to be a great landlord with high responsibilities, and if it is to continue to act with efficiency it must adapt itself to new conditions. R. C. C. CLAY.

GREEK AND ROMAN BRONZES. *By* WINIFRED LAMB, M.A., *with* 96 *plates and* 37 *illustrations in the text. Methuen.* 1929. *pp.* XXIII, 261. 25*s*.

This is a vivid and excellent history: it covers indeed a wider field than the name indicates, for it includes important sections on special periods of Etruscan bronzes. The writer brings to this study, not only scholarship and considerable knowledge of history, literature and art, but a sensitive appreciation of every side of Greek life—its people, its countryside, its religion and social institutions ; above all, its festivals, which are so largely responsible for the wealth of objects made in bronze, which are fully discussed.

The illustrations are admirably chosen. There is little controversial matter in the book so criticism is difficult. There must be omissions: the limited space cannot allow of much discussion on foreign influences and technical methods.

It is especially in the earlier chapters, which deal with the primitive and developing art of the Bronze Age and of the Iron Age, that Miss Lamb shows her specialist knowledge: there are valuable sections on the technique and style of Cretan bronze-work; on the important classes of tripods—their shapes and criteria for dating; on the Cretan 'shields' —Greek or Phoenician? For the rest, while Arcadia must welcome the return to her art of the charming country-side bronzes, which Langlotz had given mostly to Argos or Sicyon, the archaistic lady in the British Museum and the Hermes in Boston would rather have other company. E. R. Price.

LA BELGIQUE ANCIENNE, CATALOGUE DESCRIPTIF ET RAISONNÉ (Musées Royaux du Cinquantenaire à Bruxelles). *Par* Baron de Loë, *conservateur honoraire*. 1. Les Ages de la Pierre. *Vromant et Cie*. 3, *Rue de la Chapelle, Bruxelles*. 1928.

Baron de Loë, for 30 years Conservateur of the Cinquantenaire Museum, before his retirement in 1925 rendered one more service to the cause of Belgian archaeology by preparing this catalogue of the collections so long under his care 'qui sera bientôt un classique de l'archéologie nationale'.

This volume is admirably adapted not only to serve as a guide to the collections but also as a comprehensive introduction to the prehistory of Belgium. In *Notions Préliminaires* (pages 7 to 14) will be found a short but clear introduction to the classification of the geological epochs and of the prehistoric periods. This section concludes with some cautious remarks on the question of eoliths. The suggestion that eoliths may be the work of beings intermediate between man and the higher apes seems rather a way of avoiding than helping to solve the problems they present.

Pages 15 to 29 are occupied by a more detailed description of the palaeolithic periods, followed by a short description of the finds and of the various sites represented in the collections. The remainder of the volume treats of the neolithic period in a manner similar to that used for the palaeolithic. An introductory general review of the period (pages 89–105) including sections on industries, habitations, burial customs, megalithic monuments, etc., is followed by descriptions of finds and sites represented in the collections (pages 106–250). There are numerous good illustrations in the text, and both paper and printing are excellent. There is also an index. M. E. Cunnington.

VINGT-CINQ ANNÉES DE RECHERCHES, DE RESTAURATIONS ET DE RECONSTITUTIONS. *Par* E. Rahir, *Directeur du Service de Fouilles*, Musées Royaux du Cinquantenaire, Service des Fouilles de l'État. *Bruxelles*. 1928.

Belgium is fortunate in having a system by which discoveries of historic or of prehistoric interest are brought to the notice of the authorities concerned. It is known as the 'Service des Fouilles'; it was instituted in 1903 with the modest grant from public funds of a sum not to exceed 2000 francs a year. This volume is published to celebrate 25 years of accomplishment of which its members may well be proud. The officials of the 'Service' are in touch with the National Museum, and it is their duty on

hearing of some discovery to visit the site and to take such steps as may be necessary for preservation and investigation.*

This volume, in addition to a short introduction, consists of a list in alphabetical order of finds and sites investigated by the ' Service des Fouilles ' from the beginning of its activities. These range from palaeolithic times down to the middle ages, and are of course of varying importance, including some finds of even single coins. Some of the more interesting finds and sites are illustrated and there is a map of the region marking sites. To those interested in the early history of the country the volume will be indispensable. There appears to be one rather serious omission. There are no references given to publications in which more detailed accounts of the discoveries are recorded.

There are several points of interest in connexion with our own archaeological problems. On page 106 a ' mardelle ' is thus described :—' La mardelle est une depression circular remplie d'eau et qui est entourée d'un bourrelet surelévé en terre '. This description and the illustration of the ' mardelle ' recall the pond-like circular hollows with low banks round them occasionally met with on our chalk downs called by Hoare ' pond barrows ' (*Ancient Wilts*, I, 22). Some at least of the Belgian ' mardelles ' hold water and some are larger than any ' pond barrow ' known to the writer, but the former depends on the nature of the sub-soil, and chalk would not hold water unless puddled as in dew ponds. Have any of our ' pond barrows ' been examined with a view to seeing if there is any trace of former puddling ? If such were found it would solve the question of their use, and probably that of the ' mardelles ' as well ; at present the Belgians frankly admit that their purpose and origin are quite unknown.

Fig. 115 shows a perforated brick from an Early Iron Age site at La Panne, apparently similar to some that have been found in this country, notably at Wallington Camp near Croydon, which have not been satisfactorily explained. It is here shown that they served to support vessels during baking in conjunction with other objects of pottery shaped rather like large nails, pointed at one end and flattened at the other, the pointed ends fitting into the holes in the brick and the flat heads supporting the vessel. The dozen or so holes in the brick allowed for as many supports as were required and in the most convenient positions, the object being to keep the vessel as free as possible from contact while in the kiln.

A antler-comb of neolithic date from Spiennes (fig. 99) recalls those from the early sites on Windmill Hill near Avebury illustrated on plate III at page 40 of this number of ANTIQUITY, and from Abingdon, Berks., rather than the more familiar forms from Early Iron Age sites in this country. From the same site what is described as a ' lissoir néolithique ', made from a rib bone, is the counterpart of many implements found on the Early Iron Age site at All Cannings Cross. There is an interesting account of the forgeries at Spiennes, consisting of chalk axes, figurines, etc. (pages 237–240). M. E. CUNNINGTON.

DIE WEHRANLAGEN NORDALBINGIENS ; Zusammenstellung und Untersuchung der urgeschichtlichen und geschichtlichen Burgen und Befestigungen. *Von* HERMANN HOFMEISTER. *Herausgegeben vom Verein für Lübeckische Geschichte und Altertumskunde. Heft* 2, 1927. *Rentenmarks* 16.

This may be described as a ' catalogue raisonné ' of the defensive earthworks within the area that lies between the lower course of the river Elbe and the Baltic, including

* Why have we no such Service in Great Britain ? Because ——. —EDITOR.

Schleswig Holstein, the old dukedom of Lauenburg, the old principality of Lübeck-Eutin, and the free Hanseatic states of Lübeck and Lauenburg. It is claimed that the region represents a geological and cultural unity.

The first volume appeared in 1917 and dealt with the old state of Lübeck; the present one is concerned with the old principality of Ratzburg and the dukedom of Lauenburg. The sites are classified as Wendish and Saxon strongholds (Ringwälle), early castles (Burgen), fortified homesteads (Gutshöfe), defensive town works and later castles (Schlosser), and defensive works of various kinds. The sites are arranged in alphabetical order, and are illustrated in the text by sketch maps showing their surroundings, and every site of any importance is shown by a large scale plan at the end of the volume.

None of the works are what we should call prehistoric. The earliest appear to be Wendish strongholds occupied up to the time of the German invasion under Henry the Lion in the 12th century A.D., but how much earlier some of them were formed is not known. It is interesting to find that these strongholds described as Wendish are counterparts of what in Britain we call ' motte ' or castle mounds. They do not seem to be much if at all earlier than similar sites in England. At Ratzburg, for instance, a Wendish prince named Ratibor, who gave his name to the place, was living there in 1043, but whether he actually erected the mound is not known. If these dates could be ascertained with some degree of certainty it might help to settle the question as to where and by whom this type of defensive dwelling, or stronghold, originated. Formerly the English mottes were ascribed to the Saxons, but though the area under consideration comes into the region from whence these tribes came, these strongholds in this region seem too late to have influenced our Saxon invaders. It would be interesting to know if mounds of this type are found in the country lying between our region and Normandy, from whence it is fairly certain the type of earthwork was brought to England by the Normans. As in many English examples, the mounds have raised banks round the outer edge, which no doubt originally supported stockades, giving the mound a somewhat saucer-shaped sectional profile. Some of the early mounds described had solid causeways leading to the entrances instead of wooden bridges across the ditch. As far as the reviewer knows this feature is not met with on English sites, and it seems probable that it is an earlier form of entrance, recalling as it does the causeways into prehistoric earthworks. Some of the mounds seem also to have been without adjoining enclosures, or ' bailey courts '. This is also the case in some English examples and is generally considered to indicate an early date.

As the writer in his introduction to the first volume says, only by regional surveys of earthworks can their distribution become known, and thus help to identify the various types with different peoples ; this should also assist in solving problems of migrations and settlements.

As late as 1350 an earthwork was made forming a defensive boundary (*landwehr*), which though not so long compares with some of our own dykes such as Offa's Dyke and Wansdyke. It ran from Ratzburg See to the Möllner See, a distance of about five miles. The bank had a ditch on both sides. The cost of the construction and maintenance of the defence was borne by the towns of Lübeck and Mölln, and the Duke of Lauenburg. In 1369 the Duke of Mecklenburg, perhaps to show his annoyance at, and contempt for the work, broke through the defences on a marauding expedition (*als Strassenrauber*) cutting the timbers and doing great damage ; he and his followers then quartered themselves on the inhabitants of the town of Mölln much to their loss and discomfort. From this account it appears that the dyke was stockaded.

M. E. CUNNINGTON.

GRAFHEUVELS IN OOSTERWOLDE, OPGRAVINGEN IN 1928. *Door* Dr A. E. Van Giffen. (*Overdruk uit de vrije fries deel*, xxix).

Dr Van Giffen, continuing his researches in Holland, describes six burial mounds opened in 1928. (See Antiquity, December 1928, page 492).

The first three circular mounds near Langedijk are described as ' neolithic '. No. 1 had a narrow trench or ditch round it but neither of the other mounds was ditched. Inside this ditch were a number of post-holes forming an irregular circle ; at the centre the primary burial was found in a grave with a beaker and some flint flakes.

In no. 2 the remains of a burial was found on ground level, with a fine perforated axe of diorite of Jutish type, and some flint flakes. Immediately enclosing the burial were traces of wood that the excavator believed to represent the remains of a wooden cist that had been erected over it. Near the centre of no. 3 a grave was found containing a beaker and an axe of gneiss, three ' semi-microliths ' of flint and an ' arrowhead ' that looks like a long narrow flint flake. The beaker is remarkable as having a roll or raised band just below the lip, the band having a row of herring-bone pattern impressed on it ; the vessel appears to be without other ornament and is described as a variant of the so-called ' schragstrich-zonenbecher '. The other three mounds are assigned to the Bronze Age ; none was ditched round. The two near Fochteloo presented no features of interest, but the third (de Knol) had three rings of post-holes forming irregular circles just within the edge of the mound ; the holes were placed very close together, those of the inner ring being much smaller than those of the two outer ones. On the ground level at the centre a cremated burial was found without associated objects.

The plans and sections are excellent but the illustrations of the objects have been too much reduced to be at all clear. M. E. Cunnington.

HISTORY OF THE VEGETATION OF THE SOUTHERN PENNINES. *By* T. W. Woodhead. The Tolson Memorial Museum Publications Handbook v. (Repr. from *Journal of Ecology*, vol. 17, no. 1, Feb. 1929). *Cambridge University Press*. 1929.

Whatever may have happened in the south of England, there can be no doubt that the history of the vegetation in the Pennines begins no earlier than the Ice Age, at the climax of which the greater part of northern England was ice-covered. There were considerable unglaciated nunataks on the higher ground, but the climate must have been of great severity and the vegetation, if any, high arctic, though no remains have been preserved.

Then followed a very long inter-glacial, much longer than the whole of post-glacial time, and no doubt the country was occupied by a temperate flora, but this again has left no records. This flora may not have been entirely exterminated by the last glaciation, which left very large areas free of ice, but it is not until the final retreat of this ice sheet that the real history of the Pennine flora begins. This history is closely bound up with the fluctuations of climate, which have been most fully studied in Scandinavia, where a number of independent lines of evidence all lead to similar conclusions. These conclusions do not necessarily apply to the British Isles, however, and hence the great value of detailed studies such as this.

In the Pennines the records are almost entirely enshrined in the peat bogs and underlying deposits, for the view that the peat is post-Roman is no longer tenable ; but no peat deposits belonging to the late glacial are known, presumably owing to the absence

of conditions suitable to their formation. In the dry Boreal period forests of birch spread over the Pennines, with some hazel, oak and alder, and later, pine and elm. The constitution of the forests at different times has been determined by the study of pollen statistics, carried out with great enthusiasm by G. Erdtman in the British Isles. The horizons are determined by the discovery of Tardenois implements, the condition of which suggests that towards the close of the period the rainfall increased. At the close of the Boreal period the forests disappeared, but it is pointed out that the destruction of the forests is not by itself sufficient evidence for a change of climate, as the same result could be brought about by a leaching of the soil. In fact the forests never succeeded in re-establishing themselves, and hence in this area there is no evidence for a dry sub-Boreal period except a temporary dominance of heath plants.

Dr Woodhead allows it to be inferred that since boreal times the changes of climate in England have been slight. It must be remembered however that the Southern Pennines form only one local area. The lack of evidence as to climatic changes applies only to that area ; it is not evidence against a general change of climate over the whole country, but merely one additional fact to be fitted into a general scheme. The way in which it does fit in, and very neatly, was shown in ANTIQUITY, 1927, I, 412–18. If only we had a few more studies as thorough as this for well distributed parts of the British Isles it would be possible to write the history of our climate with much greater confidence than we can at present.

C. E. P. BROOKS.

A HANDBOOK OF GREEK AND ROMAN ARCHITECTURE. *By* D. S. ROBERTSON, M.A. *Cambridge University Press.* 1929. *pp.* XII, 406. 25*s.*

The aim of this book is given by the Author as 'to state, briefly but clearly, the main facts of the history of Greek, Etruscan and Roman architecture, from the earliest times to the foundation of Constantinople, so far as they are at present known'. This is a large task, and no one could be better qualified to fulfil it than the Regius Professor of Greek at Cambridge. Seldom can more knowledge have been packed into four hundred pages.

The method followed has been, in the main, to describe, for each style or period, the best preserved and most thoroughly studied buildings, and so to deduce the general principles which governed their construction. The descriptions are given in great detail, and with much technical information. To the student of any subject nothing is so satisfactory as to be given the facts, from which he can, if he wishes, form his own conclusions : or, at any rate, comprehend the reasons for the conclusions presented to him. But the general reader, or those who are at the beginning of the study of classical architecture, would have benefited very much if more generalized accounts of the main types of classical buildings had been presented before the detailed construction of individual buildings was dealt with. Also, in spite of the excellent glossary of technical terms to be found at the end of the volume, illustrations with the different features to be explained pointed out on them, as well as a general explanation of the terms used, would have been a help in the elucidation of what is, after all, a complicated science, differing from many sciences because of its appeal to the unlearned as well as to the specialist.

The historical method followed in this book enormously increases its value ; and the surprising degree to which classical architecture has permeated our own cities and homes makes it of wide interest to learn the origin, for example, of a Corinthian capital, or even of the double-s console which supported so many a Victorian marble mantelpiece.

Where the Author allows himself to generalize he is most interesting, and the chapter on Roman construction, illustrated by arches, vaults and domes, is fascinating reading. To the student of the Classics and classical history and architecture this work will be a treasure-house. Its value is enhanced by appendices giving a tabulated description of the chief classical buildings not dealt with in detail in the text, and by a long bibliography as well as the glossary. The illustrations are beyond praise, both drawings and photographs ; and the book in its general appearance and absence of misprints is another ornament to the Cambridge Press. DINA PORTWAY DOBSON.

A CENTURY OF EXPLORATION AT NINEVEH. *By* R. CAMPBELL THOMPSON *and* R. W. HUTCHINSON. *Luzac and Co.* 1929. *pp.* 146. *7s. 6d.*

This useful if somewhat ill-arranged little book contains a digest of what is known about Nineveh. Such a compilation is opportune in view of the resumption of excavation there by the authors on perhaps quite a large scale.

The following are some points of interest mentioned. The mound of Nineveh (Kouyunjik) contains 14½ million tons of earth, which it would take a thousand men 124 years to shift (preface). On page 15 is a useful list of the chief ancient sites of Mesopotamia with their modern names. ' The deepest level to which King dug (in 1903) was 68 feet, where in dark earth were found Obsidian knives ' (p. 63). ' The cuneiform sign [for Nineveh] has long been recognized as a fish in a tank, and this, of course, led to the explanation of the story of Jonah, that Nineveh was the fish that swallowed him ' (p. 113).

A good proportion of space is devoted to the modern conditions of Assyria, which not only gives interest to the narrative, but forms in itself a valuable scientific record. There are numerous plans, but we hope that, when the time comes for a more ambitious publication, it will contain certain things which, if only for reasons of format, could not well have been included in a book like this. First we need a detailed topographical map of Nineveh and its outer walls. Such could easily be compiled from an air-photograph mosaic, with a few trigonometrical points established on the ground as a framework. There is an R.A.F. station almost on the spot, at Mosul, and there would, we feel sure, be no difficulty whatever in getting the required photographs taken. Then we need a plan of the mound itself, like plan 2 but showing the remains of different periods in colour. Finally a few air-photographs, oblique and vertical, of the mound and its environs would give one a better idea, perhaps, of their character than the very poorly reproduced half-tones in this book. Finally, we wonder whether the area within the outer walls, which is now under cultivation, might not yield interesting results if photographed from the air when the corn (if such is planted) is at the right stage of growth ? Conditions there may of course preclude this ; but in view of discoveries of the plans of towns and such like made in England by this method the experiment would at any rate be worth trying.

WOODHENGE. *By* M. E. CUNNINGTON (MRS B. H. CUNNINGTON). *Devizes : G. Simpson and Co.* 1929. *pp.* 184, *with* 57 *plates.* *25s.*

This book, by the gifted author of the monograph on the Early Iron Age settlement at All Cannings, Wiltshire, tells of the excavation of this remarkable monument and some adjacent circles in the summers of 1926-1928. A notice of the discovery from the air

THE MOUND OF NINEVEH FROM THE NORTHEAST
IN FOREGROUND PART OF THE GREAT WALL; IN FRONT OF THE MOUND THE BED OF THE RIVER KHOSR

By permission of the Air Council, Crown copyright reserved

facing p. 142

and of the first season's work appeared in ANTIQUITY, March 1927, and need not be here repeated from the amplification in the book. The detailed features of the structure are presented clearly by two excellent maps, plans of a hypothetical restoration, photographs and admirable line-drawings (the air-photograph frontispiece is unfortunately printed upside down). The material aspect of the monument is well rendered by these and the letterpress, and very little criticism is here called for. A first impression, however, gathered on the spot and from the maps—often truer than one drawn from over-erudite study—suggests that the interior ovals are not intentional but are clumsily formed circles. The maps seem to show a progressive deterioration inwards from the fairly drawn outer circle which would necessarily be the first laid out for delimitation of the whole area, notwithstanding the elaborate reasons to the contrary filling pp. 15-17, which protest too much to be convincing.

Twenty-seven pages are given to the pottery, with the same number of plates of full-size figures of all the important sherds found on the site. This section is well done and valuable. But it is to be regretted that in the list of those who have reported on the classified objects no name is given of any recognized pottery-expert. That independent opinions by the best authorities are called for is evident from the fact that in the paper read before the British Association in 1927 the Woodhenge pottery was judged to 'clearly belong to the end of the Bronze Age if not actually contemporary with the first use of iron', while on p. 132 of the present book Woodhenge is assigned to the *Early* Bronze Age by reason of pottery unearthed.

If the section on 'The pottery and its bearing on the date of construction', pp 25-28, is inconclusive, this may be said with equal force of the whole of the speculative part of the book. This, was indeed, unavoidable, and it may be questioned whether it would not, for the time being, have been wiser to record the physical facts of the discovery and refrain from theorizing until the examination of other disc-barrows, hitherto so-called, provides a sounder basis. Even now another seeming Woodhenge has been observed from the air (p. 184, and ANTIQUITY, September, 1929), and possible indications exist of yet more.

Besides four pages allotted to it, pp. 18-21, there runs through much of the volume as its main thesis, a comparison of Woodhenge with Stonehenge, with the deduction that Stonehenge is a copy in stone of the timber monument. This contention, made plausible to an unwary reader by laboured special pleading, is rendered ineffectual *in limine* by the equal probability, urged by the President of the Anthropological Institute in 1927, that Woodhenge is a debased copy of Stonehenge. The curious answer then made, that if Woodhenge was already standing what need could there be of an inferior copy, is readily met by the consideration that man has always been an imitative animal. Why, since the Portland vase itself was in being, did Wedgwood make copies? Much is made of the fact that the dimensions of Stonehenge are just double those of Woodhenge. But if an adjacent tribe wanted a local mausoleum or sanctuary, what more natural than to make a half-size copy, in a handier material, of the greater example?

That present inferences can be only tentative is shown by the differing judgments on the purpose of this erection passed in the former paper and in the book. In 1927 the absence of any central burial in Woodhenge, except the unimportant one of a young child, was taken to imply the non-sepulchral character of both it and its supposed derivative Stonehenge. Two years later other known timber structures, all certainly sepulchral, are quoted as possible analogues of Woodhenge. It is also now argued that the absence of burials within adjacent circles may be due to the destruction of

mounds covering surface-burials. But this explanation must be equally applicable to Woodhenge itself.

To uphold the hypothesis that Stonehenge is an exalted copy of Woodhenge, it was clearly necessary to prove that the *whole* of Stonehenge was set up at one time without any reconstruction. Pages 28-31 are therefore devoted to an attempted proof that the Aubrey hole circle is coeval with the rest of the monument. An archaeological Athanasius *contra mundum* is impossible here. The consensus of the best authorities together with the recorded results of the late excavations are decisive against this unity in time. One of the few certainties of Stonehenge, that the ditch is earlier than the stone monument now extant, is reluctantly admitted, but it is also argued that it is earlier than the Aubrey holes. If so, it encircled a void and was purposeless, since it is not defensive. The ditch and Aubrey ring are in all probability inseparable in date, and represent the original and earliest structure, a ditch and rampart closely fringed with a ring of stones, in form and date agreeing with Arbor Low, the ring of Brogar in Stenness, &c., and assignable to ' the earliest Bronze Age at latest and more probably to the Neolithic' (ANTIQUITY, March 1929, p. 84).

Again, the Z ring of Stonehenge is said to represent the B ring of Woodhenge. But the Z holes are a later addition to Stonehenge, perhaps by many centuries, for stone 8 of the Sarsen circle had fallen before they were dug and interrupted their continuity (ANTIQUITY, March 1929, p. 80). The lay-out, too, of the Z ring is rudely irregular and cannot be an improved copy.

The Aubrey holes, ' judging from their shape and size ' are thought to have held timber uprights. To the reviewer the same appearances make it improbable. Not even a savage with a flint tool would make a post-hole wider than deep to give himself extra labour in ramming. The Woodhenge posts were apparently of uniform diameter in the several rings. Stonehenge is *ex hypothesi* a more symmetrical imitation, but the Aubrey holes vary from 5 ft. 4 in. to 1 ft. 6 in. It is beyond the limits of this review to adduce several other valid objections.

The book would have suffered no loss by the omission of the strained demonstration of the orientation of Woodhenge which pervades so many of its pages. The orientation is said to be accepted ' because it is demonstrated by the facts '. The facts seem rather to be moulded to the determination to collate Woodhenge with Stonehenge. That the builders of Woodhenge painfully threaded a line through the narrow interstices of a crowd of posts, to issue not through the entrance, but askew across a bank which would delay the sun's appearance, is incredible to the present writer. He finds that by laying a straight-edge across the map he can draw three other equally plausible ' azimuths ' which Sir Norman Lockyer might have claimed as purposely aimed at other objects celestial or terrestrial. The paper in *Archaeologia*, vol. 73, to which the author appeals is that which confirmed the present writer's total scepticism. He disbelieves in excellent company. ' Antiquaries have been led to waste much time and ink upon the supposed astronomical properties of these circles ', (Wheeler, *Prehistoric and Roman Wales*, p. 106). ' I have no faith whatsoever in correlations between the orientation of rude stone monuments of any kind and astronomical phenomena nor in deductions therefrom ', (Macalister, *Archaeology of Ireland*, p. 109). These unsubstantial speculations differ in degree rather than in kind from the Great Pyramid fantasy. GEORGE ENGLEHEART.